

Fact Sheet for IPDES Permit No. ID0022845

4/21/2020

Idaho Department of Environmental Quality (DEQ) proposes to reissue an Idaho Pollutant Discharge Elimination System (IPDES) Permit to discharge pollutants pursuant to the provisions of IDAPA 58.01.25 to:

**Santa-Fernwood Sewer District
P.O. Box 215
Fernwood, ID 83830**

Public Comment Start Date: 9/11/2019
Public Comment Expiration Date: 10/30/2019
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Purpose of this Fact Sheet

This fact sheet explains and documents the decisions the Idaho Department of Environmental Quality (DEQ) made in writing the Idaho Pollutant Discharge Elimination System (IPDES) permit for Santa-Fernwood Sewer District.

This fact sheet complies with IDAPA 58.01.25.108.02 of the Idaho Administrative Code, which requires DEQ to prepare a permit and accompanying fact sheet for public evaluation before issuing an IPDES permit.

Table of Contents

Acronyms.....	5
1 Introduction.....	7
2 Background Information.....	9
2.1 Facility Description	9
2.1.1 Facility Information	9
2.1.2 Treatment Process.....	10
2.1.3 Permit History.....	10
2.1.4 Compliance History	10
2.1.5 Sludge/Biosolids	11
2.1.6 Outfall Description	12
2.1.7 Wastewater Influent Characterization	12
2.1.8 Wastewater Effluent Characterization	13
2.2 Description of Receiving Water	14
2.2.1 Water Quality Impairments	15
2.2.2 Critical Conditions.....	15
2.3 Pollutants of Concern	16
3 Effluent Limits and Monitoring.....	17
3.1 Basis for effluent limits	20
3.2 Technology-Based Effluent Limits	20
3.2.1 Mass-Based Limits	21
3.3 Water Quality-Based Effluent Limits.....	22
3.3.1 Statutory and Regulatory Basis	22
3.3.2 Reasonable Potential Analysis (RPA) and Need for Water Quality-Based Effluent Limits	22
3.3.3 Reasonable Potential and Water Quality-Based Effluent Limits	23
3.4 Narrative Criteria.....	25
3.5 Antidegradation	25
3.5.1 Protection and Maintenance of Existing Uses (Tier I Protection)	26
3.5.2 High-Quality Waters (Tier II Protection)	26
3.6 Antibacksliding.....	28
4 Monitoring Requirements.....	29
4.1 Influent Monitoring	29
4.1.1 Influent Monitoring Changes from the 2004 Permit	29
4.2 Additional Effluent Monitoring.....	30
4.2.1 Effluent Monitoring Changes from the 2004 Permit	31
4.3 Receiving Water Monitoring.....	32

4.3.1	Receiving Water Monitoring Changes from the 2004 Permit	33
4.4	Permit Renewal Monitoring	33
5	Special Conditions	34
5.1	Nondomestic Waste Management	34
5.2	Compliance Schedule	35
5.3	Inflow and Infiltration Evaluation	36
5.4	Spill Control Plan	36
6	Standard Conditions.....	36
6.1	Quality Assurance Project Plan	36
6.2	Operation and Maintenance Manual	36
6.3	Emergency Response Plan	37
7	Compliance with other DEQ Rules	37
7.1	Operator’s License.....	37
7.2	Lagoon Seepage Testing.....	37
7.3	Sludge / Biosolids.....	37
8	Permit Expiration or Modification.....	38
9	References for Text and Appendices	38
	Appendix A. Facility Maps / Process Schematics	39
	Appendix B. Technical Calculations	42
	Appendix C. Your Right to Appeal	49
	Appendix D. Public Involvement and Public Comments	49
	A. Public Involvement Information	49
	B. Public Comments and Response to Comments	51
	Santa-Fernwood Sewer District September 18, 2019 Letter	51
	Multiple Standard Text Letters Received on September 25, 2019.....	54
	Multiple Standard Text Letters Received on September 25, 2019	54
	Anna Olson, Written Comment Received on October 23, 2019	54
	Sandra Anderson, Written Comment Received on October 23, 2019	54
	Stuart Hurley, Mountain Waterworks Comment Received on October 30, 2019	55
	Matthew Nykiel, Idaho Conservation League Comment Received on October 30, 2019	57
	Henry Lewis, Chairman, Santa-Fernwood Sewer District on October 30, 2019	58
	Johanna Bell, Association of Idaho Cities on October 30, 2019	62
	Public Meeting Held on October 23, 2019	65

List of Tables

Table 1. Facility information.	9
Table 2. Effluent limit violations.	11
Table 3. Wastewater influent characterization.....	13

Table 4. Wastewater effluent characterization.....	13
Table 5. Ambient background data.....	15
Table 6. Low flow design conditions for the St. Maries River.....	16
Table 7. 2004 Permit - Effluent limits and monitoring requirements.....	17
Table 8. Permit - Effluent limits and monitoring requirements.....	18
Table 9. Secondary treatment effluent limits.....	20
Table 10. Analysis of treatment equivalent to secondary treatment.....	21
Table 11. Antidegradation and anti-backsliding comparison for protection of the cold water aquatic life and primary recreation beneficial use.....	28
Table 12. Influent monitoring requirements	29
Table 13. Changes in Influent monitoring frequency from 2004 permit.....	30
Table 14. Additional Effluent Monitoring.....	31
Table 15. Changes in effluent monitoring frequency.	31
Table 16. Upstream receiving water monitoring requirements.	32
Table 17. Changes in Receiving Water monitoring frequency from 2004 permit.....	33
Table 18. Effluent monitoring required for all permit renewals.....	33
Table 19. Effluent testing required for permit renewals of facilities with a design flow greater than or equal to 0.1 mgd.	34
Table 20. RPA calculations for water quality-based effluent limits.....	47
Table 21. RPA calculations for water quality-based effluent limits with a mixing zone.....	48

Acronyms

1Q10	1-day, 10 year low flow
1B3	Biologically-based and indicates an allowable exceedance of once every 3 years
4B3	Biologically-based and indicates an allowable exceedance for 4 consecutive days once every 3 years
7Q10	7-day, 10 year low flow
30B3	Biologically-based design flow intended to ensure an excursion frequency of less than once every three years, for a 30-day average flow
30Q5	30-day, 5 year low flow
30Q10	30-day, 10 year low flow
AML	Average Monthly Limit
BOD ₅	Biochemical Oxygen Demand, five-day
BMP	Best Management Practices
°C	Degrees Celsius
CBOD ₅	Carbonaceous Biochemical Oxygen Demand, five-day
CFR	Code of Federal Regulations
CFS	Cubic Feet per Second
CV	Coefficient of Variation
CWA	Clean Water Act
DEQ	Idaho Department of Environmental Quality
DMR	Discharge Monitoring Report
EPA	U.S. Environmental Protection Agency
IDAPA	Refers to citations of Idaho administrative rules
IDWR	Idaho Department of Water Resources
I/I	Inflow and Infiltration
IPDES	Idaho Pollutant Discharge Elimination System
lbs/day	Pounds per day
LD ₅₀	Dose at which 50% of test organisms die in a specified time period
LTA	Long Term Average
MDL	Maximum Daily Limit or Method Detection Limit
mgd	Million gallons per day
mg/L	Milligrams per liter
mL	Milliliters

O&M	Operations and Maintenance
POC	Pollutant(s) of Concern
POTW	Publicly Owned Treatment Works
QAPP	Quality Assurance Project Plan
RPA	Reasonable Potential Analysis
RPMF	Reasonable Potential Multiplication Factor
RPTE	Reasonable Potential To Exceed
SIU	Significant Industrial User
s.u.	Standard Units
TBEL	Technology Based Effluent Limits
TMDL	Total Maximum Daily Load
TRC	Total Residual Chlorine
TRE	Toxicity Reduction Evaluation
TSD	Technical Support Document for Water Quality-based Toxics Control (EPA/505/2-90-001)
TSS	Total Suspended Solids
TU _c	Toxic Units, Chronic
WET	Whole Effluent Toxicity
USGS	United States Geological Survey
WLA	Wasteload Allocation
WQBEL	Water Quality-based Effluent Limit
WQC	Water Quality Criteria
WQS	Water Quality Standards
WWTP	Wastewater Treatment Plant

1 Introduction

This fact sheet provides information on the permit for the Idaho Department of Environmental Quality (DEQ) Idaho Pollutant Discharge Elimination System (IPDES) permit for Santa-Fernwood Sewer District. This fact sheet complies with the rules regulating the IPDES Program (IDAPA 58.01.25), which requires DEQ to prepare a permit and accompanying fact sheet for public evaluation before issuing an IPDES permit.

DEQ proposes to reissue the IPDES permit for Santa-Fernwood Sewer District. To ensure protection of water quality and human health, the permit places conditions on the type, volume, and concentration of pollutants discharged from the facility to waters of the United States.

This fact sheet includes:

- A map and description of the discharge location;
- A listing of effluent limits and other conditions the facility must comply with;
- Documentation supporting the effluent limits;
- Technical material supporting the conditions in the permit; and
- Information on public comment, public hearing, and appeal procedures.

Terms used in this fact sheet are defined in Section 5, Definitions, of the permit.

Public Comment

The permit application, permit, and fact sheet describing the terms and conditions applicable to the permit are available for public review and comment during a public comment period. The public is provided at least 30 days to provide comments to DEQ. Persons wishing to request a public meeting for this facility's permit must do so in writing within 14 calendar days of public notice being published that a permit has been prepared; requests for public meetings must be submitted to DEQ by 9/26/2019. Requests for extending a public comment period must be provided to DEQ in writing before the last day of the comment period. For more details on preparing and filing comments about these documents, please see the IPDES guidance *Public Participation in the Permitting Process* at "<http://www.deq.idaho.gov/media/60178029/ipdes-public-participation-permitting-process-0216.pdf>". For more information, please contact the permit writer.

After the close of the public comment period, DEQ considers information provided by the public, prepares a document summarizing the public comments received, and may make changes to the permit in response to the public comments. DEQ will include the summary and responses to comments in Appendix D of the final fact sheet. DEQ may request more information from the applicant in order to respond to public comments (IDAPA 58.01.25.109.02.h.). After the public comment period and prior to issuing the final permit decision, DEQ will also provide the applicant an opportunity to submit additional information to address proposed changes and support the response to public comments. DEQ will assess the public comment in conjunction with any additional information received from the applicant and develop a proposed permit.

The Environmental Protection Agency (EPA) may take up to 90 days from the publication of public notice of the permit to develop and document specific grounds for objections to a proposed permit. If EPA objects to a proposed permit DEQ must satisfactorily address the

objections within the time period specified in the memorandum of agreement between EPA and DEQ (40 CFR §123.44). Otherwise, EPA may issue a permit in accordance with 40 CFR Parts 121, 122, 124. If EPA issues the permit, any state, interstate agency, or interested person may request EPA hold a public hearing regarding the objection.

Permit Issuance

Following the public comment period(s) on a permit and after receipt of any comments on the proposed permit from EPA, DEQ will issue a final permit decision, the final permit, and the fact sheet. All comments received will be addressed in Appendix D of the final fact sheet and any resulting changes to the permit or fact sheet documented. A final permit decision means a final decision to issue, deny, modify, revoke and reissue, or terminate a permit (IDAPA 58.01.25.107.04.). The final permit and final fact sheet will be posted on the DEQ webpage. Response to comments will be located in the final fact sheet as an appendix.

The permit holder or applicant and any person or entity who filed comments or who participated in a public meeting on the permit may file a petition for review of a permit decision as outlined in Appendix C. The petition for review must be filed with DEQ's hearing coordinator within 28 days after DEQ serves notice of the final permit decision. Any person aggrieved by a final IPDES action or determination has a right to file a petition for judicial review in accordance with IDAPA 58.01.25.204.26.

Documents are Available for Review

The IPDES permit and fact sheet can be reviewed or obtained by visiting or contacting the DEQ State Office between 8:00 a.m. and 5:00 p.m., Monday through Friday at the address below. The permit, and fact sheet can also be found by visiting the DEQ website at "<http://www.deq.idaho.gov/news-public-comments-events/>."

DEQ
1410 N. Hilton St.
Boise, ID 83706
208-373-0502

The fact sheet and permit are also available at the DEQ Regional Office:

Coeur d'Alene Regional Office
2110 Ironwood Parkway
Coeur d'Alene, ID 83814

Disability Reasonable Accommodation Notice

For technical questions regarding the permit or fact sheet, contact the permit writer at the phone number or e-mail address at the beginning of this fact sheet. Those with impaired hearing or speech may contact a TDD operator at 1-800-833-6384 (ask to be connected to the permit writer at the above phone number). Additional services can be made available to a person with disabilities by contacting the permit writer.

2 Background Information

2.1 Facility Description

This fact sheet provides information on the IPDES permit for the following entity:

Table 1. Facility information.

Permittee	Santa-Fernwood Sewer District
Facility Physical Address	65290 Highway 3 South Fernwood, Idaho 83830
Facility Mailing Address	P. O. Box 215 Fernwood, Idaho 83830
Facility Contact	John Sherman Operator 208-245-3554
Responsible Official	Henry Lewis Chairman 208-245-3554
Facility Location	Latitude: 47.128059 Longitude: -116.399152
Receiving Water Name	St. Maries River
Outfall Location	Latitude: 47.126546 Longitude: -116.409986
Permit Status	
Application Submittal Date	February 2, 2009
Date Application Deemed Complete	April 13, 2009

The Santa-Fernwood Sewer District owns and operates the Publicly Owned Treatment Works (POTW) located between the communities of Santa, Idaho and Fernwood, Idaho. The collection system has no combined sewers. The facility serves a resident population of about 100 in Santa and about 575 in Fernwood based on their permit application. There are no major or minor industries discharging to the facility.

2.1.1 Facility Information

The design flow of the facility is 0.10 mgd. The design flow was reported and verified by the Santa-Fernwood Sewer District. This change corrects an error from the 2004 permit which mistakenly listed the design flow at 0.2 mgd. The treatment process consists of a series of aerated lagoons and a chlorine disinfection system to treat domestic wastewater. The effluent is dechlorinated before being discharged to the St. Maries River. Details about the wastewater treatment process are provided in Section 2.1.2, and a map showing the location of the treatment facility and Outfall 001 are included in Appendix A. Because the design flow for the facility is less than 1 mgd, the facility is considered a minor facility.

2.1.2 Treatment Process

Wastewater enters the plant from two influent lines, one from the Santa lift station and one from the Fernwood lift station. Both influents combine in cell 1. Primary treatment occurs in cells 1 - 3; cells 4 - 6 are used for storage. The capacity of each cell is as follows: cells 1 and 2 have a capacity of 1.4 million gallons (MG) each; cell 3 has a capacity of 4.3 MG; cell 4 has a capacity of 4.2 MG; cell 5 has a capacity of 4.1 MG, and cell 6 has a capacity of 6 MG. All six cells are capable of aeration; however, air can only be directed to one cell at a time.

The facility underwent an upgrade in 2013 to address several issues including short circuiting of the lagoons, installing influent flow meters and installing a new, larger chlorine contact chamber. Part of the 2013 work also included fixing inflow and infiltration (I/I) issues in Santa's collection system. Since the upgrades, discharge generally occurs from January through May, which has significantly reduced the period of discharge that previously continued later into the summer months to accommodate storage during the late summer and fall months. I/I improvement projects are still ongoing for the Fernwood collection system.

Effluent goes through chlorine disinfection then dechlorination before being discharged to the Saint Maries River. The outfall is equipped with a 20 foot long diffuser which is buried below the river substrate with the diffuser pipe ending at mid-channel.

2.1.3 Permit History

The Santa-Fernwood Sewer District built the current facility in 1982 as a joint partnership between the communities of Santa, ID and Fernwood, ID. The last permit was issued in 2004 and became effective on 6/1/2004 with an expiration date of 5/31/2009. An application for permit renewal was received by EPA on 2/2/2009 and was deemed complete on 4/13/2009. Since the application was deemed complete by EPA in a timely manner, the permit was administratively continued since a new permit was not issued before the 2004 permit expired.

The facility was originally designed to incorporate overland flow as part of the treatment process before discharging to the St. Maries River. The overland flow treatment was eventually discontinued. Originally, only cells 1 and 2 were used for primary treatment; cell 3 was designed for storage. Due to large amounts of I/I during storm events, cell 3 was also needed for primary treatment and was converted from a storage cell. Short circuiting caused additional issues in the original design during high inflow events, which resulted in ineffective treatment. In 2013, the facility underwent an upgrade project to address the short circuiting, install influent flow meters and to upgrade the chlorine contact chamber. In addition to the facility upgrade in 2013, other projects addressing inflow and infiltration started up in other individual communities. The project to address I/I in Santa has been completed while the Fernwood I/I project is ongoing.

2.1.4 Compliance History

There have been 230 DMR non-report violations and 43 effluent violations since the 2004 permit as issued. However, all of the DMR non-report violations and 37 of the effluent violations occurred prior to the 2013 facility upgrade and I/I projects. Only six effluent violations have occurred after the upgrade. Table 2 shows the breakdown of effluent violations before and after the 2013 upgrades.

Table 2. Effluent limit violations.

Parameter Exceeding Permit Limits	Limit, units	Units	Number of Instances prior to upgrade project and I/I reduction projects	Number of Instances post upgrade project and I/I reduction projects
BOD ₅	Monthly Average	mg/L	1	0
BOD ₅	Weekly Average	mg/L	8	0
BOD ₅	Percent Removal	-	3	1
TSS	Weekly Average	mg/L	5	0
TSS	Monthly Average	Lb/Day	2	0
TSS	Percent Removal	-	7	2
pH	Maximum	s. u.	0	3
<i>E. coli</i>	Monthly Average	Number per 100 Milliliters	2	0
<i>E. coli</i>	Daily Maximum	Number per 100 Milliliters	3	0
Chlorine, Total Residual	Monthly Average	mg/L	2	0
Chlorine, Total Residual	Daily Maximum	mg/L	1	0
Chlorine, Total Residual	Monthly Average	Lb/Day	2	0
Chlorine, Total Residual	Daily Maximum	Lb/Day	1	0

DEQ conducted inspections, on behalf of EPA, on the facility in July 2012 and December 2017. The inspections encompassed the wastewater treatment process, records review, operation and maintenance, and the collection system. The results of the most recent inspection found the facility to generally be well-maintained and operated. Two areas of concern appeared in the facility's QAPP and O&M manual, which did not reflect current procedures and the 2013 modifications to the facility. During a meeting between DEQ permit writing staff and Santa-Fernwood Sewer District staff to discuss the permit renewal, DEQ was informed that updates to these documents have begun. Neither DEQ nor EPA has initiated any enforcement actions as a result of violations or inspections.

2.1.5 Sludge/Biosolids

The EPA Region 10, under the authority of the CWA, issues separate sludge-only permits for the purpose of regulating biosolids. Permits for sludge management are independent of IPDES discharge permits and must be obtained from EPA. The IPDES program will take over permitting of sludge/biosolids in July 2021. In addition, sludge management plans must be submitted to DEQ and must follow the procedures in IDAPA 58.01.16.

A special condition of this permit will require Santa-Fernwood Sewer District to develop a sludge management plan. At a minimum, the plan must include yearly reporting of sludge levels within the lagoons to DEQ.

2.1.6 Outfall Description

Outfall 001 for the Santa-Fernwood Sewer District is located on the St. Maries River 0.4 miles west of the facility in between the community of Santa and the community of Fernwood. The outfall is equipped with a 20 foot long diffuser that is buried roughly three feet under the substrate with the pipe to the diffuser coming from the right bank. The end of the diffuser was buried at the midpoint of the channel when constructed in 1983. Analysis of aerial photos shows that the channel has not shifted during the photo record (1992-2016). Due to the diffuser being buried, a special condition set forth in the permit that will require Santa-Fernwood Sewer District to conduct a study to determine the effectiveness of mixing between the effluent and the Saint Maries River. The study will aid possible mixing zone development in future permits.

Outfall 002 was located just after the discharge pipe crosses under the railroad tracks on the right bank of the Saint Maries River. Outfall 002 was capable of discharging into a small creek that then flows into the Saint Maries River. Outfall 002 has been sealed and is no longer capable of discharge; therefore no effluent limits for this outfall are required.

2.1.7 Wastewater Influent Characterization

The influent to the Santa Fernwood Sewer District plant arrives in separate lines from the communities of Santa and Fernwood. The individual flows from each community are measured prior to being combined and entering cell 1. Flow meters were installed as part of the 2013 plant upgrades. In addition to the plant upgrades, improvements to the collection system were also done as part of an inflow and infiltration (I/I) reduction project. Santa has completed the I/I project on their collection system and the work in Fernwood is ongoing. Santa-Fernwood reported the influent concentrations for total suspended solids (TSS) and biological oxygen demand (BOD) in Discharge Monitoring Reports (DMRs) submitted to EPA. Samples are collected from the individual flows from each community and combined for analysis. The results are characterized in Table 3. The tabulated data represents the quality of the influent wastewater received from 2004 permit issuance through May, 2018 and is broken out by pre and post plant upgrade periods. Only data collected post 2013 upgrade has been used in development of this permit.

Table 3. Wastewater influent characterization.

Parameter	Units	# of Samples (dates of samples)	Average Value	Maximum Value	Data Source
TSS	mg/L	46 (2004-2013)	502.80	4090	DMR
TSS	mg/L	16 (2014-2018)	133.69	228.00	DMR
BOD ₅	mg/L	46 (2004-2013)	287.79	1240	DMR
BOD ₅	mg/L	16 (2014-2018)	143.25	242.00	DMR

2.1.8 Wastewater Effluent Characterization

Results from Santa-Fernwood's reported DMR effluent pollutant concentrations are characterized in Table 4. The tabulated data represents the quality of the effluent discharged from the 2004 permit issuance through May 2018 and is broken out by pre (2004-2013) and post (2014-2018) plant upgrade periods. To establish calculated permit limits for this permit, only the post 2013 upgrade data was used.

Table 4. Wastewater effluent characterization.

Parameter	Units	# of Samples (dates of samples)	Average Values	Maximum Values	Data Source
TSS	mg/L	36 (2004-2013)	11.21	30.00	DMR
TSS	mg/L	16 (2014-2018)	6.94	13.00	DMR
TSS	Percent Removal	32 (2004-2013)	91.05	99.50	DMR
TSS	Percent Removal	16 (2014-2018)	92.68	98.00	DMR
BOD ₅	mg/L	46 (2004-2013)	8.44	30.2	DMR
BOD ₅	mg/L	16 (2014-2018)	7.19	16.10	DMR
BOD ₅	Percent Removal	45 (2004-2013)	94.41	99.00	DMR
BOD ₅	Percent Removal	16 (2014-2018)	93.62	98.00	DMR
Chlorine, Total Residual	mg/L	45 (2005-2013)	0.10	0.89	DMR
Chlorine, Total Residual	mg/L	16 (2014-2018)	0.07	0.19	DMR
Ammonia, Total as N	mg/L	5 (2006)	4.45	5.40	DMR
Ammonia, Total as N	mg/L	1 (2018)	7.36	7.36	DMR
Total Phosphorus as P	mg/L	6 (2006)	.96	2.25	DMR

Total Phosphorus as P	mg/L	1 (2018)	1.79	1.79	DMR
Temperature	°C	230 (2006-2011)	12.09	26.80	DMR
Temperature	°C	0 (2014-2018)	--	--	--
Parameter	Units	# of Samples (dates of samples)	Average Geometric Mean	Maximum Reported Geometric Mean	Data Source
E. Coli	Number per 100 Milliliters	46 (2004-2013)	24.74	619.4	DMR
E. Coli	Number per 100 Milliliters	16 (2014-2018)	2.03	2.51	DMR
Parameter	Units	# of Samples (dates of samples)	Minimum Value	Maximum Value	Data Source
pH	standard units	610 (2007-2013)	6.70	8.70	DMR
pH	standard units	275 (2014-2018)	7.07	9.73	DMR

2.2 Description of Receiving Water

Santa-Fernwood Sewer District discharges to the Saint Maries River within the St. Joe Subbasin (HUC 17010304) water body unit ID17010304PN012_05 (Carpenter Creek to Santa Creek). At the point of discharge, the Saint Maries River is protected for the following designated uses (IDAPA 58.01.02.110.11):

- Cold Water Aquatic Life
- Primary Contact Recreation

According to DEQ's 2016 Integrated Report, this assessment unit (AU) is not fully supporting one or more of its assessed uses. The aquatic life use is not fully supported. Causes of impairments include temperature and sedimentation/siltation. The contact recreation beneficial use is fully supported. As such, DEQ will provide Tier 1 protection (IDAPA 58.01.02.051.01) for the aquatic life use and Tier II protection (IDAPA 58.01.02.051.02) in addition to Tier I for the contact recreation use (IDAPA 58.01.02.052.05.a).

The Santa-Fernwood Sewer District Outfall 001 is located between the communities of Santa and Fernwood. For more information on Outfall 001 see Section 2.15- Outfall Description. Another nearby point source discharge is the community of Clarkia's WWTP, 15.5 river miles upstream from the Santa-Fernwood outfall. There are no public drinking water intakes downstream of the discharge. Potential non-point sources that are present in the watershed include nutrient inputs from agriculture and sediment erosion from unpaved roads, and silviculture. Section 2.2.1 of this fact sheet describes any receiving waterbody impairments.

The ambient background data used for this permit includes the following input from USGS gaging station 12414900 and data provided by Santa-Fernwood Sewer District. Temperature and pH data was provided from the USGS gage station with date ranges of 1972-2002. No upstream data was available. Only data collected upstream of the outfall was used for ammonia and total

phosphorus and the date range was 2004-2014 for ammonia and 2004-2018 for phosphorus. An ammonia sample collected by the Santa-Fernwood Sewer District in 2018 was not included in the analysis below due to questions of the sample accuracy as it is a large outlier when compared to the data set.

Table 5. Ambient background data.

Parameter	Units	Percentile	Value
Temperature	°C	90 th	19
pH	Standard units	90 th	7.8
Ammonia, Total as N	mg/L	90 th	0.44
Total Phosphorus as P	mg/L	maximum	0.13

2.2.1 Water Quality Impairments

Water bodies not supporting existing or designated beneficial uses must be identified as water quality limited, and a total maximum daily load (TMDL) must be prepared for those pollutants causing impairment. A central purpose of TMDLs is to establish wasteload allocations (WLAs) for point source discharges, which are set at levels designed to help restore the water body to a condition that supports existing and designated beneficial uses. Discharge permits must contain limits that are consistent with the assumptions and requirements of WLAs that have been assigned to the discharge in an EPA-approved TMDL.

The EPA-approved *St. Maries River Subbasin Assessment and Total Maximum Daily Loads* (2003) and the *St. Joe River Subbasin Temperature Total Maximum Daily Loads: Addendum to the St. Joe River Subbasin Assessment and Total Maximum Daily Loads and St. Maries River Subbasin Assessment and Total Maximum Daily Loads* (2011) establishes WLAs of 35 °C daily maximum for temperature and a TSS WLA of 30 mg/L and maximum daily sediment load of 34 lb/day. The TMDL also identified a critical period of July 15th through August 15th for temperature. The TMDL concluded that the sediment contribution from all point sources in the watershed accounted for 0.10% of the sediment load; this point source sediment load therefore was deemed negligible. The WLA were set to the permit limits at the time the document was published in 2003. These WLAs are designed to meet narrative and numeric criteria and ultimately help restore the water body to a condition that supports existing and beneficial uses. The effluent limits and associated requirements contained in the permit are set at levels that are consistent with the TMDL.

2.2.2 Critical Conditions

The low flow conditions of a water body are used to determine water quality-based effluent limits. In general, Idaho's water quality standards require criteria be evaluated at the following low flow design conditions (See IDAPA 58.01.02.210.03.b) as defined in Table 6. The 1Q10 represents the lowest one-day flow with a recurrence frequency of once in ten (10) years while the 1B3 is biologically based and indicates an allowable exceedance of once every three (3) years. The 7Q10 represents lowest average seven (7) consecutive day flow with a recurrence frequency of once in ten (10) years while the 4B3 is biologically based and indicates an allowable exceedance for four (4) consecutive days once every three (3) years. The 30Q5 represents the lowest average 30 consecutive day flow with a recurrence frequency of once in five (5) years. The harmonic mean is a long-term mean flow value calculated by dividing the

number of daily flow measurements by the sum of the reciprocals of the flows. The 30Q10 represents the lowest average 30 consecutive day flow with a recurrence frequency of once in 10 years. 30B3 is the biologically-based design flow intended to ensure an excursion frequency of less than once every three years, for a 30-day average flow.

Table 6. Low flow design conditions for the St. Maries River.

Criteria	Flow Condition	Critical Flow (cfs)
Acute aquatic life	1Q10	25.88
Chronic aquatic life	7Q10	30.521
Non-carcinogenic human health criteria	30Q5	41.096
Carcinogenic human health criteria	harmonic mean flow	114.44
Ammonia, Total as N	30Q10	36.657

Sources for data that DEQ examined are the United States Geological Survey (USGS), Idaho Department of Water Resources (IDWR) and other available data for the receiving water. For this permit, DEQ determined critical low flows upstream of the discharge from the USGS gage 12414900 St. Maries River NR Santa, ID. Estimated low flows are presented in Table 6. The period of record for the gage is from 1966 through 2017.

2.3 Pollutants of Concern

DEQ may identify pollutants of concern (POC) for the discharge based on, but not limited to, those which:

- Have a technology-based limit (TBEL)
- Have an assigned WLA from a TMDL
- Had an effluent limit in the previous permit
- Are present in the effluent monitoring data reported in the application, DMRs, or special studies
- Are expected to be in the discharge based on the nature of the discharge
- Are impairing the beneficial uses of the receiving water

To determine POCs for further analysis, DEQ evaluated all pertinent and available information such as the permit application, previous DMRs, raw discharge data provided by the facility, TMDLs and the facility's industrial user surveys. The wastewater treatment process for this facility includes three (3) treatment lagoons and three (3) storage lagoons, chlorination and dechlorination prior to discharge to the Saint Maries River via a 20 foot buried diffuser extending to the mid channel of the river. Pollutants expected in the discharge from a facility with this type of treatment are currently:

- Total Suspended Solids (TSS)
- Biological Oxygen Demand (BOD)
- *E. coli* bacteria
- Ammonia
- Total Residual Chlorine (TRC)
- pH
- Temperature

3 Effluent Limits and Monitoring

Table 7 presents the effluent limits and monitoring requirements in the 2004 permit. Table 8 presents the effluent limits and monitoring requirements in the permit.

Table 7. 2004 Permit - Effluent limits and monitoring requirements.

Parameter	Effluent Limits			Monitoring Requirements		
	Average Monthly Limit	Average Weekly Limit	Instantaneous Maximum Limit	Sample Location	Sample Frequency	Sample Type
Flow	---	---	---	Effluent	Continuous	Recording
BOD ₅	30 mg/L	45 mg/L	---	Influent and Effluent	1/month	8-hour composite
	50 lbs/day	75 lbs/day	---			Calculation
BOD ₅ Percent Removal	85 (minimum)	---	---	---	1/month	Calculation
TSS	30 mg/L	45 mg/L	---	Influent and Effluent	1/month	8-hour composite
	50 lbs/day	75 lbs/day	---			Calculation
TSS Percent Removal	85 (minimum)	---	---	---	1/month	Calculation
<i>E. coli</i> ^{a,b}	126/100 ml	---	406/100 ml	Effluent	5/month	Grab
TRC	0.2 mg/L	---	0.5 mg/L	Effluent	1/week	Grab
	0.3 lbs/day	---	0.8 lbs/day			
pH	6.5–9.0 all times			Effluent	1/week	Grab
Temperature ^c , °C	---	---	---	Effluent	1/month	Grab
Total Phosphorus as P ^c , mg/L	---	---	---	Effluent	1/month	8-hour composite
Ammonia, Total as N ^c , mg/L	---	---	---	Effluent	1/month	8-hour composite

- The average monthly *E. coli* counts must not exceed a geometric mean of 126/100 ml based on a minimum of five samples taken every 3-5 days within a calendar month. See EPA permit Part I.G. for definition of geometric mean.
- Reporting is required within 24 hours of an instantaneous maximum limit violation. See EPA permit Part II.G.
- Monitoring shall be conducted once per month starting in January 2006 and lasting for one year.

Table 8. Permit - Effluent limits and monitoring requirements

Parameter	Units	Effluent Limits						Monitoring Requirements		Reporting Frequency (DMR Months)
		Average Monthly	Average Weekly	Monthly Geometric Mean	Instantaneous Minimum	Instantaneous Maximum	Daily Maximum	Sample Type	Minimum Sample Frequency	
Biochemical Oxygen Demand (BOD ₅) ^a	mg/L	30	45		---	---		8-hour composite	2/month	Monthly Reporting (All months)
	lbs/day	25	38		---	---		Calculation ^b		
BOD ₅ , Percent Removal ^c	% Removal	85 (Minimum)	---		---	---		Calculation	1/month	
Total Suspended Solids (TSS)	mg/L	30	45		---	---		8-hour composite	2/month	Monthly Reporting (All months)
	lbs/day	25	38		---		34	Calculation ^b		
TSS Percent Removal ^c	% Removal	85 (Minimum)	---		---	---		Calculation	1/month	
<i>E. Coli</i> ^d	MPN/100 ml		---	126	---	--- ^e		Grab ^f	5/month	Monthly Reporting (All months)
Total Residual Chlorine Limit A ^h	mg/L	0.2	---		---		0.5	Grab	1/week	Monthly Reporting (All months)
	lbs/day	0.2	---		---		0.4	Calculation		
Total Residual Chlorine Limit B ^{h, g}	mg/L	0.01	---		---		0.02	Grab	1/week	Monthly Reporting (All months)
	lbs/day	0.01	---		---		0.02	Calculation		
pH ⁱ	standard units	---	---		6.5	9.0		Grab	2/week	Monthly Reporting (All months)
Temperature ^j	°C	---	---		---	35		Recording	Continuous	Monthly Reporting (All months)

- a. Take effluent samples for the BOD₅ analysis before or after the disinfection process.
- b. Calculated means figured concurrently with the respective sample, using the following formula: Concentration (in mg/L) X Flow (in mgd) X Conversion Factor (8.34) = lb/day
- c. $\% \text{ Removal} = \frac{([\text{Influent}](\text{mg/L}) - [\text{Effluent}](\text{mg/L}))}{([\text{Influent}](\text{mg/L}))} \times 100\%$
Braces "[]" indicate concentration of the attribute contained inside
Calculate the percent (%) removal of BOD₅ and TSS using the above equation.
- d. The average monthly E. coli bacteria counts must not exceed a geometric mean of 126 organisms/100 ml based on a minimum of five samples taken every 3 – 7 days within a calendar month.
- e. Idaho's water quality standards for primary contact recreation include a single sample value of 406 organisms/100 ml. Exceedance of this value indicates likely exceedance of the 126 organisms/100 ml average monthly effluent limit, however it is not an enforceable limit for a daily value, nor is exceeding this value a violation of water quality standards. If this value is exceeded at any point within the month, the facility should consider monitoring according to IDAPA 58.01.02.251.01.a to determine compliance with the monthly geomean.
- f. Grab means an individual sample collected over a fifteen (15) minute, or less, period.
- g. Final TRC limits will be determined by outcome of the compliance schedule. TRC limit A will be the interim limit until the completion of the compliance schedule.
- h. The limits for chlorine are not quantifiable using EPA-approved analytical methods. The minimum level (ML) for chlorine is 50 µg/L for this parameter. DEQ will use 50 µg/L as the compliance evaluation level for this parameter. The permittee will be compliance with the total residual chlorine limits if the average monthly and maximum daily concentrations are less than 50 µg/L and the average monthly and maximum daily mass loadings are less than 0.05 lbs/day. For purposes of calculating the monthly averages, see Section 2.2.2 of the permit
- i. Report the instantaneous minimum and maximum for the monitoring period.
- j. Temperature data must be recorded using DEQ-approved temperature monitoring devices set to record at one-hour or more frequent intervals. DEQ's Protocol for Placement and Retrieval of Temperature Data Loggers contains protocols for continuous temperature sampling. This document is available online at: http://www.deq.idaho.gov/media/487602-wq_monitoring_protocols_report10.pdf. Report the following temperature monitoring data on the DMR: insert specific statistics to report.

3.1 Basis for effluent limits

Regulations require that effluent limits in an IPDES permit must be either technology-based or water quality-based.

TBELs are set according to the level of treatment that is achievable using available technology. These effluent limits are based upon the treatment processes used to reduce specific pollutants. TBELs are set by the EPA and published as a regulation. DEQ may develop a TBEL on a case-by-case basis (40 CFR 125.3, IDAPA 58.01.25.302, and IDAPA 58.01.25.303).

WQBELs are calculated so the effluent will comply with the Idaho's surface water quality standards (IDAPA 58.1.02) or the National Toxics Rule (40 CFR 131.36), applicable to the receiving water.

DEQ must apply the most stringent of these limits to each POC. These limits are described below.

3.2 Technology-Based Effluent Limits

IDAPA 58.01.25.302. requires that IPDES permits include applicable TBELs and standards, while 40 CFR 125.3(a)(1) states that TBELs for POTWs must be based on secondary treatment standards or as specified in 40 CFR 133. The following section explains secondary treatment effluent limits for the conventional pollutants discharged by POTWs: 5-day biochemical oxygen demand (BOD₅), total suspended solids (TSS), and pH. These effluent limits are given in 40 CFR Part 133 and are outlined in Table 9.

Table 9. Secondary treatment effluent limits.

Parameter	30-day average	7-day average
BOD ₅	30 mg/L	45 mg/L
TSS	30 mg/L	45 mg/L
Removal for BOD ₅ and TSS (concentration)	85% (minimum)	---
pH	within the limits of 6.0 - 9.0 s.u.	

The facility does not meet the three requirements for equivalent to secondary treatment listed under 40 CFR 133.101(g) which states:

“Facilities eligible for treatment equivalent to secondary treatment. Treatment works shall be eligible for consideration for effluent limitations described for treatment equivalent to secondary treatment (§ 133.105), if:

(1) The BOD₅ and SS effluent concentrations consistently achievable through proper operation and maintenance (§ 133.101(f)) of the treatment works exceed the minimum level of the effluent quality set forth in § 133.102(a) and 133.102(b),

(2) A trickling filter or waste stabilization pond is used as the principal process, and

(3) The treatment works provide significant biological treatment of municipal wastewater. Significant biological treatment (§133.101(k)) is defined as the use of an aerobic or anaerobic biological treatment process in a treatment works to consistently achieve a 30-day average of a least 65 percent removal of BOD₅”

The first criteria for equivalent to secondary have not been met since the TSS and BOD₅ monthly averages and weekly averages are below the threshold for equivalent to secondary (the values are low enough that Santa-Fernwood is meeting secondary treatment limits). Due to the fact that all conditions in 40 CFR 133.101(g) are not met, the facility is not eligible for the “treatment equivalent to secondary treatment” standards found in 40 CFR 133.105. Table 10 shows a breakdown of criteria 1 and 3.

Table 10. Analysis of treatment equivalent to secondary treatment.

BOD ₅ Criteria 1		Criteria 3	TSS Criteria 1	
BOD ₅ Monthly Ave	BOD ₅ Weekly Ave	BOD % Removal	TSS Monthly Ave.	TSS Weekly Ave
95th percentile = 13.4	20.1	5th percentile = 86.0	95th percentile = 13.0	19.5
To meet Treatment Equivalent to Secondary conditions (1) and (3) the data must show:				
>30 mg/L	1.5 times the monthly calculation (13.4 mg/L x 1.5=20.1) must be greater than 45 mg/L	>65% removal	>30 mg/L	1.5 times the monthly calculation (13.0 mg/L x 1.5=19.5) must be greater than 45 mg/L
Does data meet criteria (1) and (3) of Treatment Equivalent to Secondary Treatment?				
No	No	Yes	No	No

Based on the above regulations and taking into account the DMR data from the last permit cycle the technology based effluent limits are as follows:

For BOD:

Santa-Fernwood meets the secondary treatment effluent limits for BOD and is not eligible for equivalent to secondary treatment effluent limits. Therefore, the effluent limit for BOD will be 30 mg/L for the average monthly limit and 45 mg/L for the average weekly limit.

For TSS:

Santa-Fernwood meets the secondary treatment effluent limits for TSS and is not eligible for equivalent to secondary treatment effluent limits. Therefore, the effluent limit for TSS will be 30 mg/L for the average monthly limit and 45 mg/L for the average weekly limit.

3.2.1 Mass-Based Limits

IDAPA 58.01.25.303.06 requires that effluent limits be expressed in terms of mass, except under certain conditions. IDAPA 58.01.25.303.02 requires that effluent limits for POTWs be calculated

based on the design flow of the facility. The mass-based limits are expressed in pounds per day and are calculated as follows:

$$\text{Mass based limit (lb/day)} = \text{concentration limit (mg/l)} \times \text{design flow (mgd)} \times 8.34^i$$

Design flow for this facility is 0.1 mgd, resulting in the following technology-based mass limits.

BOD₅:

$$\text{Average Monthly Limit} = 30 \text{ mg/l} \times 0.1 \text{ mgd} \times 8.34 = 25 \text{ lbs/day}$$

$$\text{Average Weekly Limit} = 45 \text{ mg/l} \times 0.1 \text{ mgd} \times 8.34 = 38 \text{ lbs/day}$$

TSS:

$$\text{Average Monthly Limit} = 30 \text{ mg/l} \times 0.1 \text{ mgd} \times 8.34 = 25 \text{ lbs/day}$$

$$\text{Average Weekly Limit} = 45 \text{ mg/l} \times 0.1 \text{ mgd} \times 8.34 = 38 \text{ lbs/day}$$

3.3 Water Quality-Based Effluent Limits

3.3.1 Statutory and Regulatory Basis

Section 301(b)(1)(C) of the Clean Water Act (CWA) requires the development of limits in permits necessary to meet WQS. The IPDES regulation IDAPA 58.01.25.302.06 implementing Section 301(b)(1)(C) of the CWA requires that permits include limits for all pollutants or parameters that are or may be discharged at a level that will cause, have the reasonable potential to cause, or contribute to an excursion above any State or Tribal WQS including narrative criteria for water quality. Effluent limits must also meet the applicable water quality requirements of affected States other than the State in which the discharge originates, which may include downstream States (IDAPA 58.01.25.103.03, IDAPA 58.01.25.302.06, see also CWA Section 401(a)(2)).

The regulations require the permitting authority to make this evaluation using procedures that account for existing controls on point and non-point sources of pollution, the variability of the pollutant in the effluent, species sensitivity (for toxicity), and where appropriate, dilution in the receiving water. The limits must be stringent enough to ensure that WQS are met and must be consistent with any available TMDL WLA for the discharge. If there are no approved TMDLs that specify WLAs for this discharge, all of the WQBELs are calculated directly from the applicable WQS.

3.3.2 Reasonable Potential Analysis (RPA) and Need for Water Quality-Based Effluent Limits

DEQ uses the process described in the *Effluent Limit Development Guidance* (DEQ 2017) to determine reasonable potential. To determine if there is reasonable potential for the discharge to cause or contribute to an exceedance of water quality criteria (WQC) for a given pollutant, DEQ compares the maximum projected receiving water concentration to the WQC for that pollutant. If

ⁱ 8.34 is a conversion factor with units (lb × L)/(mg × gallon × 10⁶)

the projected receiving water concentration exceeds the criteria, there is reasonable potential, and a WQBEL must be included in the permit.

In some cases, a dilution allowance or mixing zone is permitted. A mixing zone is a limited area or volume of water where initial dilution of a discharge takes place and within which certain water quality criteria may be exceeded (IDAPA 58.01.02.060). While the criteria may be exceeded within the mixing zone, the use and size of the mixing zone must be limited such that the waterbody as a whole will not be impaired, all designated uses are maintained and acutely toxic conditions are prevented.

Due to the lack of information and concerns on how mixing is occurring with Santa-Fernwood Sewer District's use of a buried diffuser, a mixing zone will not be granted at this time. If DEQ is presented with new information, such as a mixing zone study or if the discharge structure is modified to a direct discharge into the surface water of Saint Maries River then DEQ will reexamine its decision on granting a mixing zone in any future issued permits for any new pollutants with reasonable potential to exceed water quality standards.

3.3.3 Reasonable Potential and Water Quality-Based Effluent Limits

The reasonable potential and WQBELs for specific parameters are summarized below. The calculations are provided in Appendix B.

3.3.3.1 Ammonia, Total as N

Ammonia criteria are based on a formula that relies on the pH and temperature of the receiving water. Because the fraction of ammonia present as the toxic, un-ionized form increases with increasing pH and temperature, the criteria become more stringent as pH and temperature increase.

At the time of permit development, DEQ did not have adequate information to determine whether the effluent had a reasonable potential to cause or contribute to a violation of the water quality standards for ammonia. One sample has been collected since the facility upgrades were completed. Santa-Fernwood will be required to monitor for ammonia in the effluent and receiving water upstream of the discharge. When the ammonia monitoring is being conducted, pH and temperature must be collected at the same time for both sampling locations. If reasonable potential to exceed water quality criteria exists based on the data gathered, DEQ will use the information to determine whether a mixing zone is appropriate and calculate any necessary effluent limits.

3.3.3.2 *E. coli*

The Idaho WQS states that waters of the State of Idaho that are designated for recreation (primary or secondary) are not to contain *E. coli* bacteria in concentrations exceeding a geometric mean of 126 organisms per 100 ml based on a minimum of five samples taken every three to seven days over a 30-day period. A mixing zone is not appropriate for bacteria for waters designated for contact recreation. Therefore, the permit contains a monthly geometric mean effluent limit for *E. coli* of 126 organisms per 100 ml (IDAPA 58.01.02.251.01.a.).

The Idaho WQS also state that a water sample that exceeds certain “single sample maximum” values indicates a likely exceedance of the geometric mean criterion, although it is not, in and of itself, a violation of WQS. For waters designated for primary contact recreation, the “single sample maximum” value is 406 organisms per 100 mL (IDAPA 58.01.02.251.01.b.ii.). For waters designated only for secondary contact recreation the “single sample maximum” value is 576 organisms per 100 mL (IDAPA 58.01.02.251.01.b.i.). When a single sample maximum, is exceeded, additional samples should be taken to assess compliance with the geometric mean criterion.

Monitoring of the effluent five times per month will ensure compliance with the criterion can be assessed. If the single sample maximum is exceeded, the permittee may choose to monitor more frequently than the permit requires, ensuring adequate disinfection and compliance with permit effluent limits exists.

Regulations at IDAPA 58.01.25.303.04 require that effluent limits for continuous discharges from POTWs be expressed as average monthly and average weekly limits, unless impracticable. Additionally, the terms “average monthly limit” and “average weekly limit” are defined in IDAPA 58.01.25.010.06 and 07 respectively as being arithmetic (as opposed to geometric) averages. It is impracticable to properly implement a 30-day geometric mean criterion in a permit using monthly and weekly arithmetic average limits. The geometric mean of a given data set is equal to the arithmetic mean of that data set if and only if all of the values in that data set are equal. Otherwise, the geometric mean is always less than the arithmetic mean. Therefore, the permit monthly effluent limit is a geometric mean for *E. coli* of 126 organisms per 100 ml.

3.3.3.3 Chlorine, Total Residual

The Idaho WQS in Table 1 at IDAPA 58.01.02.210 establish an acute criterion of 19 µg/L and a chronic criterion of 11 µg/L for the protection of aquatic life. A compliance schedule has been established for TRC. The final effluent limits are dependent on the outcome of the compliance schedule. See Appendix B for the reasonable potential and effluent limit calculations for chlorine.

3.3.3.4 pH

The Idaho WQS, at IDAPA 58.01.02.250.01.a, require pH values of the receiving water to be within the range of 6.5 to 9.0. Mixing zones are generally not granted for pH; therefore the most stringent WQC must be met before effluent is discharged to the receiving water.

3.3.3.5 Total Phosphorus as P

The Saint Maries River is not listed as impaired for total phosphorus. At the time of permit development, DEQ did not have adequate information to determine whether the effluent has a reasonable potential to cause or contribute to a violation of the water quality standards. While total phosphorus has no numeric criteria, dischargers are required to meet narrative criteria in IDAPA 58.01.02.200. The permittee must monitor the final effluent and receiving water at the frequencies specified in Table 14 and Table 16. If reasonable potential exists, DEQ will use the information to determine any necessary effluent limits. Also, monitoring for total phosphorus supports the objectives of the Lake Management Plan which is a comprehensive waterbody plan

that is centered on managing nutrients in the Coeur d'Alene Basin in order to manage the release of metal contaminated sediments in Coeur d'Alene Lake.

3.3.3.6 Temperature

The Saint Maries River is listed as impaired for temperature and a TMDL has been developed and published in 2011. A temperature WLA was assigned to Santa-Fernwood Sewer District in the TMDL. Since no temperature data was available post plant upgrades, the temperature limit within the permit is the WLA.

3.4 Narrative Criteria

DEQ must consider the narrative criteria described in IDAPA 58.01.02.200 when it determines permit limits and conditions. Narrative WQC limit the toxic, radioactive, or other deleterious material concentrations that the facility may discharge which have the potential to adversely affect designated uses, cause acute or chronic toxicity to biota, impair aesthetic attributes, or adversely affect human health.

The Idaho WQS require that surface waters of the State be free from floating, suspended, or submerged matter of any kind in concentrations impairing designated beneficial uses. The permit contains a narrative limitation prohibiting the discharge of such materials.

3.5 Antidegradation

DEQ's antidegradation policy provides three levels of protection to water bodies in Idaho subject to Clean Water Act (CWA) jurisdiction (IDAPA 58.01.02.051).

- Tier I of antidegradation protection is designed to ensure that existing uses and the water quality necessary to protect those uses is maintained and protected (IDAPA 58.01.02.051.01; 58.01.02.052.01). A Tier I review is performed for all new or reissued permits or licenses (IDAPA 58.01.02.052.07).
- Tier II protection applies to any water bodies considered to be high quality waters (where the water quality exceeds levels necessary to support propagation of fish, shellfish, wildlife, and recreation in and on the water) and provides that water quality will be maintained and protected unless allowing for lower water quality is deemed by the state as necessary to accommodate important economic or social development in the area. In allowing any lowering of water quality DEQ must ensure adequate water quality to protect existing uses fully and must assure that there will be achieved the highest statutory and regulatory requirements for all new and existing point sources (IDAPA 58.01.02.051.02; 58.01.02.052.08).
- Tier III protection applies to water bodies that have been designated by the Idaho Legislature as outstanding national resource waters and provides that water quality is to be maintained and protected (IDAPA 58.01.02.051.03; 58.01.02.052.09).

DEQ employs a water body by water body approach to implementing Idaho's antidegradation policy. This approach means that any water body fully supporting its beneficial uses will be considered high quality (IDAPA 58.01.02.052.05.a). Any water body not fully supporting its beneficial uses will be provided Tier I protection for that use unless specific circumstances

warranting Tier II protection are met (IDAPA 58.01.02.052.05.c). The most recent federally approved Integrated Report and supporting data are used to determine support status and the tier of protection (IDAPA 58.01.02.052.05).

3.5.1 Protection and Maintenance of Existing Uses (Tier I Protection)

A Tier I review is performed for all new or reissued permits or licenses, applies to all waters subject to the jurisdiction of the Clean Water Act, and requires demonstration that existing and designated uses and the level of water quality necessary to protect existing and designated uses shall be maintained and protected. In order to protect and maintain existing and designated beneficial uses, a permitted discharge must comply with narrative and numeric criteria of the Idaho WQS, as well as other provisions of the WQS.

Water bodies not supporting existing or designated beneficial uses must be identified as water quality limited, and a total maximum daily load (TMDL) must be prepared for those pollutants causing impairment. Prior to the development of the TMDL, the WQS require the application of the antidegradation policy and implementation provisions to maintain and protect uses (IDAPA 58.01.02.055.04).

The EPA-approved *St. Maries River Subbasin Assessment and Total Maximum Daily Loads* (2003) and the *St. Joe River Subbasin Temperature Total Maximum Daily Loads: Addendum to the St. Joe River Subbasin Assessment and Total Maximum Daily Loads* and *St. Maries River Subbasin Assessment and Total Maximum Daily Loads* (2011) establishes WLAs for temperature and TSS. The effluent limits and associated requirements contained in the permit are set at levels designed to ensure compliance with the narrative and numeric criteria in the WQS and the wasteload allocations established in the *St. Maries River Subbasin Assessment and Total Maximum Daily Loads* (2003) and the *St. Joe River Subbasin Temperature Total Maximum Daily Loads: Addendum to the St. Joe River Subbasin Assessment and Total Maximum Daily Loads* and *St. Maries River Subbasin Assessment and Total Maximum Daily Loads* (2011). Therefore, DEQ has determined the permit will protect and maintain existing and designated beneficial uses in the St. Maries River in compliance with the Tier I provisions of Idaho's WQS (IDAPA 58.01.02.051.01 and 58.01.02.052.07).

3.5.2 High-Quality Waters (Tier II Protection)

The Saint Maries River is considered high quality for primary contact recreation. As such, the water quality relevant to primary contact recreation use of the Saint Maries River must be maintained and protected, unless a lowering of water quality is insignificant or is deemed necessary to accommodate important social or economic development (IDAPA 58.01.02.052.08).

To determine whether degradation will occur, DEQ must evaluate how the discharge will affect water quality for each pollutant that is relevant to primary contact recreation uses of the Saint Maries River (IDAPA 58.01.02.052.06). These include the following pollutants of concern: *E. coli*, phosphorus and ammonia. Effluent limits are set in the permit for *E. coli*. Phosphorus, a nutrient contributor, and ammonia do not have limits because at the time of permit development DEQ did not have adequate information to determine whether the concentrations in the effluent has a reasonable potential to cause or contribute to a violation of the water quality standards.

For a reissued permit, the effect on water quality is determined by looking at the difference in water quality that would result from the activity or discharge as authorized in the 2004 permit and the water quality that would result from the activity or discharge as proposed in the reissued permit (IDAPA 58.01.02.052.06.a). For a new permit, the effect on water quality is determined by reviewing the difference between the existing receiving water quality and the water quality that would result from the activity or discharge as proposed in the new permit or license (IDAPA 58.01.02.052.06.a).

3.5.2.1 Pollutants with Limits in the 2004 and 2020 Permit

For pollutants that are currently limited and will have limits under the reissued permit, the current discharge quality is based on the limits in the 2004 permit or license (IDAPA 58.01.02.052.06.a.i), and the future discharge quality is based on the permit limits (IDAPA 58.01.02.052.06.a.ii). For the Santa-Fernwood permit, this means determining the permit's effect on water quality based upon the limits for pollutants with limits in both 2004 permit and the 2020 permit. In most cases there was either no change or a decrease in effluent limits. The 2004 permit limits were calculated using a design flow of 0.2 mgd. Upon further investigation by Santa-Fernwood, it was determined that the design flow for the facility is actually 0.1 mgd which is the design flow Santa-Fernwood indicated on their application. The average monthly limit and the maximum daily limit for total residual chlorine has decreased along with the mass based limits since a mixing zone for chlorine will not be granted. Table 11 provides a summary of the 2004 permit limits and the 2020 permit limits.

3.5.2.2 New Permit Limits for Pollutants Currently Discharged

When new limits are proposed in a reissued permit for pollutants in the existing discharge, the effect on water quality is based upon the current discharge quality and the proposed discharge quality resulting from the new limits. Current discharge quality for pollutants that are not currently limited is based upon available discharge quality data (IDAPA 58.01.02.052.06.a.i). Future discharge quality is based upon proposed permit limits (IDAPA 58.01.02.052.06.a.ii).

The permit includes new limits for temperature. The maximum daily temperature limit is from the 2011 TMDL.

3.5.2.3 Pollutants with No Limits

There are two POCs relevant to Tier II protection of primary contact recreation beneficial use that currently are not limited and for which the proposed permit contains no limit (Table 15). For such pollutants, a change in water quality is determined by reviewing whether changes in production, treatment, or operation that will increase the discharge of these pollutants are likely (IDAPA 58.01.02.052.06.a.ii). Total ammonia and total phosphorus did not have sufficient data to assess the nutrient narrative standards impact to primary contact recreation. DEQ is requiring monitoring for these pollutants in the POTW effluent. DEQ has determined the proposed permit will cause insignificant or no degradation in the St. Maries River. In sum, DEQ concludes that this discharge permit complies with the Tier II provisions of Idaho's WQS (IDAPA 58.01.02.051.02 and IDAPA 58.01.02.052.06).

3.6 Antibacksliding

Section 402(o) of the CWA and regulations at IDAPA 58.01.25.200 generally prohibit the renewal, reissuance, or modification of an existing IPDES permit that contains effluent limits, permit conditions, or standards that are less stringent than those established in the existing permit but provides limited exceptions. For explanation of the antibacksliding exceptions refer to section 4.1 of the Effluent Limit Development Guidance (DEQ 2017).

DEQ compared the effluent limits in the 2004 permit with the 2020 limits in Table 11 below and has determined no backsliding will occur with the issuance of the permit. There were no increases to the permit limits. Limits (pounds per day) for TSS and BOD₅ decreased due to a revised design flow submitted by the facility. Total residual chlorine decreased; DEQ did not grant a mixing zone at this time. Also, Santa-Fernwood reported that they are already able to achieve the lower limits. Additionally, wasteload allocations for temperature and TSS were added to the permit from the TMDL's for the Saint Maries River.

Table 11. Antidegradation and anti-backsliding comparison for protection of the cold water aquatic life and primary recreation beneficial use.

Pollutant	Units	2004 Permit			2020 Permit			Change ^a
		Average Monthly Limit	Average Weekly Limit	Maximum Daily	Average Monthly Limit	Average Weekly Limit	Maximum Daily	
Pollutants with limits in both the 2004 and 2018 permit								
BOD ₅	mg/L	30	45	---	30	45	---	NC
	lb/day	50	75	---	25	38	---	D
	Minimal % removal	85	---	---	85	---	---	NC
TSS	mg/L	30	45	---	30	45	---	NC
	lb/day	50	75	---	25	38	34 ^b	D
	Minimal % removal	85	---	---	85	---	---	NC
pH	standard units	6.5–9.0 all times			6.5–9.0 all times			NC
<i>E. coli</i>	no./100 mL	126	---	406	126	---	---	NC
Total Residual Chlorine (final)	mg/L	0.2	---	0.5	0.01	---	0.02	D
	lb/day	0.3	---	0.8	0.01	---	0.02	D
Pollutants with new limits in the 2020 permit								
Temperature	°C	---	---	---	---	---	35°	D
Pollutants with no limits in both the 2004 and 2020 permit								
Ammonia, Total as N	mg/L	---	---	---	---	---	---	NC
Total Phosphorus as P	mg/L	---	---	---	---	---	---	NC

^a D = Decrease in pollutant load or concentration, I = Increase in pollutant load or concentration, NC = No change

^b This is a maximum daily limit set in the *St. Maries River Subbasin Assessment and Total Maximum Daily Loads* (2003)

^cThis is a maximum daily limit set in the *St. Joe River Subbasin Temperature Total Maximum Daily Loads: Addendum to the St. Joe River Subbasin Assessment and Total Maximum Daily Loads and St. Maries River Subbasin Assessment and Total Maximum Daily Loads* (September 2011).

4 Monitoring Requirements

Idaho regulations IDAPA 58.01.02 and 58.01.25 require that monitoring be included in permits to determine compliance with effluent limits and other permit restrictions. Monitoring may also be required to gather data to assess the need for future effluent limits or to monitor effluent impacts on receiving water quality. Permittees are responsible for conducting monitoring and reporting the results on monthly DMRs and in annual reports. The monitoring requirements listed in the section below are in addition to the requirements listed in Table 8 for parameters with effluent limits. The tables below that show changes in monitoring requirements (Tables 13, 15 and 17) from the 2004 permit to the 2020 permit include parameters with limits that have had the monitoring requirements changed and a rationale for the change.

4.1 Influent Monitoring

Flow, TSS and BOD monitoring requirements are listed below in Table 12. Permittees have the option of taking more frequent samples than are required under the permit. These samples must be used for averaging if they are conducted using the EPA-approved test methods (generally found in 40 CFR 136) or as specified in the permit. Since the two influent streams are combined after the headworks building, influent samples collected in the headworks building must be flow balanced based on the inflow from the two mains (i.e. if 60% of the flow into the plant is coming from Santa, then the grab sample collected at that time must be composed of 60% influent from Santa and 40% influent from Fernwood). The flow balance calculation must be done each time a sample aliquot for the 8-hour composite sample is collected.

Table 12. Influent monitoring requirements

Parameter	Monitoring Period	Units	Minimum Sample Frequency	Sample Type	Report	Reporting Frequency (DMR Months)
Flow	01/01 to 12/31	mgd	Continuous	Recording	Daily Maximum and Average Monthly	All months
BOD ₅	01/01 to 12/31	mg/L	2/month	8-hr composite	Daily Maximum and Average Monthly	All Months
TSS	01/01 to 12/31	mg/L	2/month	8-hr composite	Daily Maximum and Average Monthly	All Months

4.1.1 Influent Monitoring Changes from the 2004 Permit

Due to the fact that there was insufficient data to assess average monthly and weekly limits based on the collection of one sample per month, monitoring has increased for BOD and TSS relative to the 2004 permit. Changes in monitoring are presented below in Table 13. The sampling frequency has been increased to two samples per month.

Table 13. Changes in Influent monitoring frequency from 2004 permit.

Parameter	2004 Permit	2020 Permit	Rationale
BOD ₅	1/month	2/month	The 2004 permit rate of one sample per month provides insufficient data to assess that limits are being achieved since only one sample is used to assess weekly and monthly limits. This puts the permittee at a disadvantage if the one sample exceeds limits and they do not elect to collect more samples. The adjustment in the monitoring frequency is to allow for a better analysis of the achievement of monthly average and weekly average permit limits.
TSS	1/month	2/month	The 2004 permit rate of one sample per month provides insufficient data to assess that limits are being achieved since only one sample is used to assess weekly and monthly limits. This puts the permittee at a disadvantage if the one sample exceeds limits and they do not elect to collect more samples. The adjustment in the monitoring frequency is to allow for a better analysis of the achievement of monthly average and weekly average permit limits.

4.2 Additional Effluent Monitoring

Monitoring frequencies are based on the nature and effect of the pollutant, as well as a determination of the minimum sampling necessary to adequately monitor the facility's performance. Permittees have the option of taking more frequent samples than are required under the permit. These samples must be used for averaging if they are conducted using the EPA-approved test methods (generally found in 40 CFR 136) or as specified in the permit.

Pollutants that must be monitored, but do not have effluent limits, are presented in Table 14. The sampling location must be after the last treatment unit and prior to discharge to the receiving water. The samples must be representative of the volume and nature of the monitored discharge. If no discharge occurs during the reporting period, "no discharge" shall be reported on the DMR.

Santa-Fernwood's 2004 permit required additional effluent monitoring for ammonia and phosphorus for one year in 2006 to determine if reasonable potential existed for the parameters. While the facility collected five samples when discharges occurred in 2006, the data is not usable for a reasonable potential analysis due to the facilities upgrades in 2013. Therefore, the permit will require monitoring for ammonia, phosphorus and dissolved oxygen to collect enough data so a reasonable potential analysis can be calculated. Due to the intermittent discharge of the facility, effluent monitoring of these parameters shall occur once a month until a new permit is issued. Ammonia sampling must be collected along with corresponding pH and temperature monitoring.

Table 14. Additional Effluent Monitoring

Parameter	Monitoring Period	Units	Minimum Sample Frequency	Sample Type	Report	Reporting Frequency (DMR Months)
Flow	01/01 to 12/31	mgd	Continuous	Recording	Daily Maximum and Average Monthly	All Months
Ammonia, Total as N ^a	01/01 to 12/31	mg/L	1/month	8-hour composite	Value	All Months
Total Phosphorus as P	01/01 to 12/31	mg/L	1/month	8-hour composite	Value	All Months
Dissolved Oxygen ^b	01/01 to 12/31	mg/L	1/month	Grab	Instantaneous Minimum	All Months

a. Ammonia samples must be taken concurrently with pH and temperature samples.

b. Dissolved Oxygen samples must be taken concurrently with temperature samples.

4.2.1 Effluent Monitoring Changes from the 2004 Permit

Monitoring for BOD₅, TSS, temperature, pH, ammonia, phosphorus and dissolved oxygen have been increased relative to the 2004 permit. Changes in monitoring are presented in Table 15, below; the changes are based on insufficient data to assess compliance with permit limits and TMDL wasteload allocations.

Table 15. Changes in effluent monitoring frequency.

Parameter	2004 Permit	2020 Permit	Rationale
BOD ₅	1/month	2/month	The 2004 permit rate of one sample per month provides insufficient data to assess that limits are being achieved since only one sample is used to assess weekly and monthly limits. This puts the permittee at a disadvantage if the one sample exceeds limits and they do not elect to collect more samples. The adjustment in the monitoring frequency is to allow for a better analysis of the achievement of monthly average and weekly average permit limits.
TSS	1/month	2/month	The 2004 permit rate of one sample per month provides insufficient data to assess that limits are being achieved since only one sample is used to assess weekly and monthly limits. This puts the permittee at a disadvantage if the one sample exceeds limits and they do not elect to collect more samples. The adjustment in the monitoring frequency is to allow for a better analysis of the achievement of monthly average and weekly average permit limits in addition to the TMDL WLA.

Parameter	2004 Permit	2020 Permit	Rationale
Temperature	1/month in 2006 only	Continuous	There is an effluent limit and a TMDL WLA for this parameter and monitoring is now required.
pH	1/week	2/week	There have been several pH effluent violations during the last permit cycle. The minimal monitoring requirement has increased to twice a week to ensure compliance with effluent limits.
Ammonia, Total as N	1/month in 2006 only	1/month	Due to upgrades to the facility in 2013, the data collected in 2006 is not usable in a RPA. The increase in sampling will ensure that there are adequate data to conduct a RPA.
Total Phosphorus as P	1/month in 2006 only	1/month	Due to upgrades to the facility in 2013, the data collected in 2006 is not usable in a RPA. The increase in sampling will ensure that there are adequate data to conduct a RPA.
Dissolved Oxygen	none	1/month	There is no data for DO so a RPA could not be done. The sampling will ensure that there are adequate data to conduct a RPA.

4.3 Receiving Water Monitoring

Receiving water monitoring is needed to complete RPA's for pollutants of concern. Santa-Fernwood Sewer District shall establish upstream and downstream receiving water monitoring station locations that has been approved by the DEQ Coeur d'Alene Regional Office. At this time only upstream monitoring is required in the permit (pending the buried diffuser mixing zone verification study) but the establishment of a downstream station is still required to allow Santa-Fernwood time to secure access to a site should downstream monitoring be required in future permits. Receiving water monitoring results must be submitted with the DMR. Receiving monitoring shall occur on the same day that effluent monitoring occurs for the parameters being sampled. If no discharge occurs during the quarter, receiving water monitoring must still be conducted within the quarter. Temperature and pH monitoring must be conducted in coordination with ammonia monitoring. Dissolved oxygen must also be collected when temperature monitoring is done. Table 16 presents the receiving water monitoring requirements for the permit.

Table 16. Upstream receiving water monitoring requirements.

Parameter	Units	Minimum Sample Frequency ^{a,b}	Sample Type	Report	Reporting Frequency (DMR Months) ^c
Ammonia, Total as N ^d	mg/L	1/quarter	Grab	Value	March, June, September, December
Total Phosphorus as P	mg/L	1/quarter	Grab	Value	March, June, September, December
Dissolved Oxygen ^e	mg/L	1/quarter	Grab	Value	March, June, September, December
Temperature	°C	1/quarter	Grab	Value	March, June, September, December
pH	s.u.	1/quarter	Grab	Value	March, June, September, December

- Monitoring shall occur the same day as effluent sampling for the parameter when discharge is occurring.
- Monitoring shall occur during each quarter even if no discharge occurs during that quarter.

- c. If monitoring occurs in a month during the quarter prior to the reporting month then a comment with the date that the monitoring activity occurred must be included with the DMR.
- d. Ammonia samples must be taken concurrently with pH and temperature samples.
- e. Dissolved Oxygen samples must be taken concurrently with temperature samples.

4.3.1 Receiving Water Monitoring Changes from the 2004 Permit

Dissolved oxygen has also been added to the receiving water monitoring parameter list. Changes in monitoring are presented in Table 17, below. Quarterly monitoring of ammonia, phosphorus, temperature and pH will remain the same due to the upgrades at the facility in 2013. Continued monitoring is needed so that a current data set for the receiving water will be available for future permit development.

Table 17. Changes in Receiving Water monitoring frequency from 2004 permit.

Parameter	2004 Permit	2020 Permit	Rationale
Dissolved Oxygen	---	1/quarter	Receiving water monitoring data is required to conduct a RPA.

4.4 Permit Renewal Monitoring

The permit renewal monitoring requires data collected to characterize the effect of the effluent on the St. Maries River. At a minimum, three scans of the final wastewater effluent for the parameters listed in Table 18 and Table 19 are required so that DEQ can assess the surface water impacts.

Table 18. Effluent monitoring required for all permit renewals.

Parameter	Units	Sample Type	Report
pH	s.u.	Grab	Minimum and maximum value
Flow	mgd	Continuous	Maximum daily value, average daily value, number of samples
Temperature ^a	°C	Continuous	
BOD ₅	mg/L	24-hour composite	Maximum daily value, average daily value, analytical method and ML or MDL
TSS	mg/L	24-hour composite	
<i>E. Coli</i>	colonies/100 mL	Grab	

- a. The permittee must report the maximum daily value of the quarter which sampling is required and report the average daily value for the entire quarter. The permittee must report the maximum daily value of the quarter which sampling is required and report the average daily value for the entire quarter.

The facility has a design flow greater than or equal to 0.1 MGD and must also complete three scans of effluent testing for the parameters in Table 19.

Table 19. Effluent testing required for permit renewals of facilities with a design flow greater than or equal to 0.1 mgd.

Parameter	Units	Sample Type	Report
Ammonia, Total as N	mg/L	24-hour composite	Maximum daily value, average daily value, analytical method and ML or MDL
Chlorine, Total Residual	mg/L	Grab	
Dissolved oxygen	mg/L	24-hour composite	
Total Kjeldahl Nitrogen	mg/L	24-hour composite	
Nitrate plus Nitrite	mg/L	24-hour composite	
Oil and grease	mg/L	Grab	
Total Phosphorus as P	mg/L	24-hour composite	
Total dissolved solids	mg/L	24-hour composite	

An individual scan includes all parameters in Table 18 and Table 19. For parameters in which a grab sample must be collected, each scan consists of a minimum of four grab samples, analyzed individually. For parameters requiring a 24-hour composite sample, only one analysis of the composite of aliquots is required for each scan.

The permittee must conduct one permit renewal monitoring scan of the effluent according to the following schedule:

- 2021: First Quarter
- 2022: Second Quarter
- 2023: Fourth Quarter

This schedule spreads monitoring over the permit effective period, as well as captures a range of seasons. If discharging is not occurring during the scheduled quarter for permit renewal monitoring, the permittee must notify DEQ through the E-permitting system and collect the required application renewal samples once discharging resumes.

5 Special Conditions

5.1 Nondomestic Waste Management

The permittee has nonsignificant, nondomestic (industrial/commercial) users, which are neither subject to the pretreatment standards in 40 CFR 405 through 471, nor meet any of the criteria of a significant industrial user (SIU) as specified in 40 CFR 403.3(v), and therefore, DEQ does not require an authorized pretreatment program. The permittee must ensure, through a sewer use ordinance, that pollutants from nondomestic wastes discharged to their system do not negatively impact system operation or pass through the wastewater treatment facility. The permittee must not authorize indirect discharges of pollutants that would inhibit, interfere with, or otherwise be incompatible with operation of the wastewater treatment works, including interference with the use or disposal of municipal sludge.

Santa-Fernwood Sewer District submitted a master list of nondomestic users from the industrial user survey to DEQ in December of 2017. DEQ determined, based on the list submitted, that Santa-Fernwood was not required to develop a pretreatment program. Santa-Fernwood must

maintain their master list and submit an updated list with their application for permit renewal. If Santa-Fernwood Sewer District accepts waste from an SIU or CIU, a pretreatment program is required to control the effect of indirect discharges on treatment capability and effluent quality. The pretreatment program must be approved by the DEQ Pretreatment Program Coordinator prior to accepting any discharge from the SIU or CIU.

5.2 Compliance Schedule

IDAPA 58.01.25.305 and 40 CFR 122.47 allow for compliance schedules in IPDES permits to provide additional time for permittees to achieve compliance. The compliance schedule has several possible outcomes based on the decisions made by the permittee. The reason for the compliance schedule is due to a Cormix model that showed the effluent plume is potentially attached to the streambed. A plume is considered attached when very little mixing is occurring between the effluent and receiving water. In this case jet mixing, an important component to initial mixing, may be inhibited when a diffuser is buried due to the overburden buffering the flow; similarly, buoyant mixing, due to effluent to receiving water temperature differential, may be inhibited due to the thermal sink provided by the overburden. There have not been any previous mixing zone studies conducted on the Santa-Fernwood District's discharge. When the Cormix model was adjusted for a theoretical discharge from a pipe above the surface, rapid mixing did occur and the size of the mixing zone was much smaller. The compliance schedule provides several options to the Santa-Fernwood District to insure compliance with the final total residual chlorine (TRC) limits.

The first option is for the Santa-Fernwood District to abandon the diffuser and construct a surface discharge to the St. Maries River. This discharge would allow for easier modeling of the effluent for mixing zone purposes since extensive data collection would not be required. If this course of action is chosen it should be designed in a manner to encourage rapid mixing.

The second option is for the Santa-Fernwood District to do a diffuser study to determine effectiveness of the current diffuser for compliance with the TRC limits and potential future ammonia limits. As ammonia does not degrade as rapidly as chlorine, the permittee must design a study, collect ammonia data, and submit the data to DEQ via the IPDES E-Permitting system for review. The purpose for the study is to determine whether Santa-Fernwood's buried diffuser can provide effective mixing with the receiving water. The study should determine the extent of mixing in order to be able to set limits for the type of mixing that may be occurring based on the minimal parameters below. The ammonia mixing study, along with other ammonia monitoring required in the permit, will be used in future reasonable potential analysis during the next permit development. The permittee must comply with the following:

- Final study design must be approved by Idaho DEQ prior to the study being conducted.
- Study will be designed to examine mixing of ammonia at various depths at the same monitoring location, downstream of the diffuser. Multiple downstream sampling sites must be incorporated in the design.
- One monitoring site must be established upstream of the diffuser to collect background ammonia data.
- The study must include quality assurance/quality control measures and protocol.

- The study and final report must be completed and submitted to DEQ two years from the effective date of the permit, 6/1/2022.

The final option is for the permittee to not do either of the above options with the knowledge that a mixing zone would not be granted until one of the above options is completed. The lack of mixing zone being granted could affect any future pollutants requiring limits and could have costly ramifications in the future for the facility and its rate payers.

5.3 Inflow and Infiltration Evaluation

Santa-Fernwood Sewer District will submit a report summarizing the results of the I&I evaluation and any reduction activities performed during the previous year and planned activities for the following year.

5.4 Spill Control Plan

The permittee shall maintain and implement a plan for spill control of chlorinating and dechlorinating chemicals used by the facility.

6 Standard Conditions

Section 4 of the permit contains standard regulatory language that must be included in all IPDES permits. DEQ bases the standard conditions on state and federal law and regulations. The standard regulatory language covers requirements such as monitoring, recording, and reporting requirements, compliance responsibilities, and other general requirements.

6.1 Quality Assurance Project Plan

In accordance with IDAPA 58.01.25.300.05, permittees are required to develop procedures to ensure that the monitoring data submitted is accurate and explain data anomalies if they occur. The permittee is required to update and implement a plan for additional monitoring requirements due 18 months after the effective date of the permit. The quality assurance plan shall consist of standard operating procedures for collecting, handling, storing and shipping samples, laboratory analysis, and data reporting. The plan shall be retained on site and made available to DEQ upon request.

6.2 Operation and Maintenance Manual

The permit requires Santa-Fernwood Sewer District to properly operate and maintain all facilities and systems of conveyance, treatment, and control. Proper operation and maintenance is essential to meeting effluent limits, monitoring requirements, and all other permit requirements at all times. The permittee is required to update and implement an operation and maintenance plan for their facility. The plan must be retained on site and made available to DEQ upon request.

6.3 Emergency Response Plan

The permittee must maintain and implement an emergency response plan that identifies measures to protect public health and the environment. At a minimum, the plan must include mechanisms for the following:

1. Ensure that the permittee is aware (to the greatest extent possible) of all overflows from portions of the collection system over which the permittee has ownership or operational control as well as any unanticipated treatment unit bypass or upset that may exceed any effluent limit in the permit.
2. Ensure that reports of an overflow or of an unanticipated bypass or upset that may exceed any effluent limit in this permit are immediately dispatched to appropriate personnel for investigation and response.
3. Ensure immediate notification to DEQ of any noncompliance that may endanger public health or the environment and identify the public health district and other officials who will receive immediate notification for items that require 24-hour.
4. Ensure that appropriate personnel understand, are appropriately trained on, and follow the Emergency Response Plan; and
5. Provide emergency facility operation.

7 Compliance with other DEQ Rules

7.1 Operator's License

The permittee must meet the requirements and operator license levels listed in the wastewater rules at IDAPA 58.01.16.203 for the type(s) of operations at the facility.

7.2 Lagoon Seepage Testing

The permittee must comply with the "Wastewater Rules" in IDAPA 58.01.16, including the seepage testing requirements in IDAPA 58.01.16.493 for municipal lagoons. Prior to lagoon seepage testing, the permittee must consult with DEQ. The permittee must submit up-to-date seepage test reports to DEQ per the IDAPA 58.01.16 timelines.

7.3 Sludge / Biosolids

DEQ separates wastewater and sludge permitting for the purposes of regulating biosolids. DEQ may issue a sludge-only permit to each facility at a later date, as appropriate.

Until future issuance of a sludge-only permit, sludge management and disposal activities at each facility continue to be subject to the national sewage sludge standards at 40 CFR 503 and the requirements of Idaho's Wastewater Rules (IDAPA 58.01.16.480 and 650). The 503 regulations are self-implementing, and facilities must comply with them whether or not a permit has been issued. Idaho's Wastewater Rules require a POTW to have the capability to process sludge accumulated on site in preparation for final disposal or reuse (IDAPA 58.01.16.480 and

58.01.16.650). Operations of these sludge processing, storage, and disposal activities must comply with the facility's sludge management plan.

Santa-Fernwood Sewer District shall submit a report on sludge depths in the lagoons to DEQ through the IPDES E-Permitting System no later than June 3, 2024.

8 Permit Expiration or Modification

The permit will expire five years after the effective date.

DEQ may modify a permit before its expiration date only for causes specified in IDAPA58.01.25.201.02. A modification other than a minor modification requires preparing a permit that incorporates the proposed changes, preparing a fact sheet, and conducting a public review period. Only the permit conditions subject to the modification will be reopened when a permit is modified. All other conditions of the existing permit remain in effect. Modifying a permit does not change the expiration date of the original permit.

9 References for Text and Appendices

EPA. 1991. *Technical Support Document for Water Quality-based Toxics Control*. US Environmental Protection Agency, Office of Water, EPA/505/2-90-001.

Water Pollution Control Federation. Subcommittee on Chlorination of Wastewater. *Chlorination of Wastewater*. Water Pollution Control Federation. Washington, D.C. 1976.

EPA. 2010. *NPDES Permit Writers' Manual*. Environmental Protection Agency, Office of Wastewater Management, EPA-833-K-10-001.

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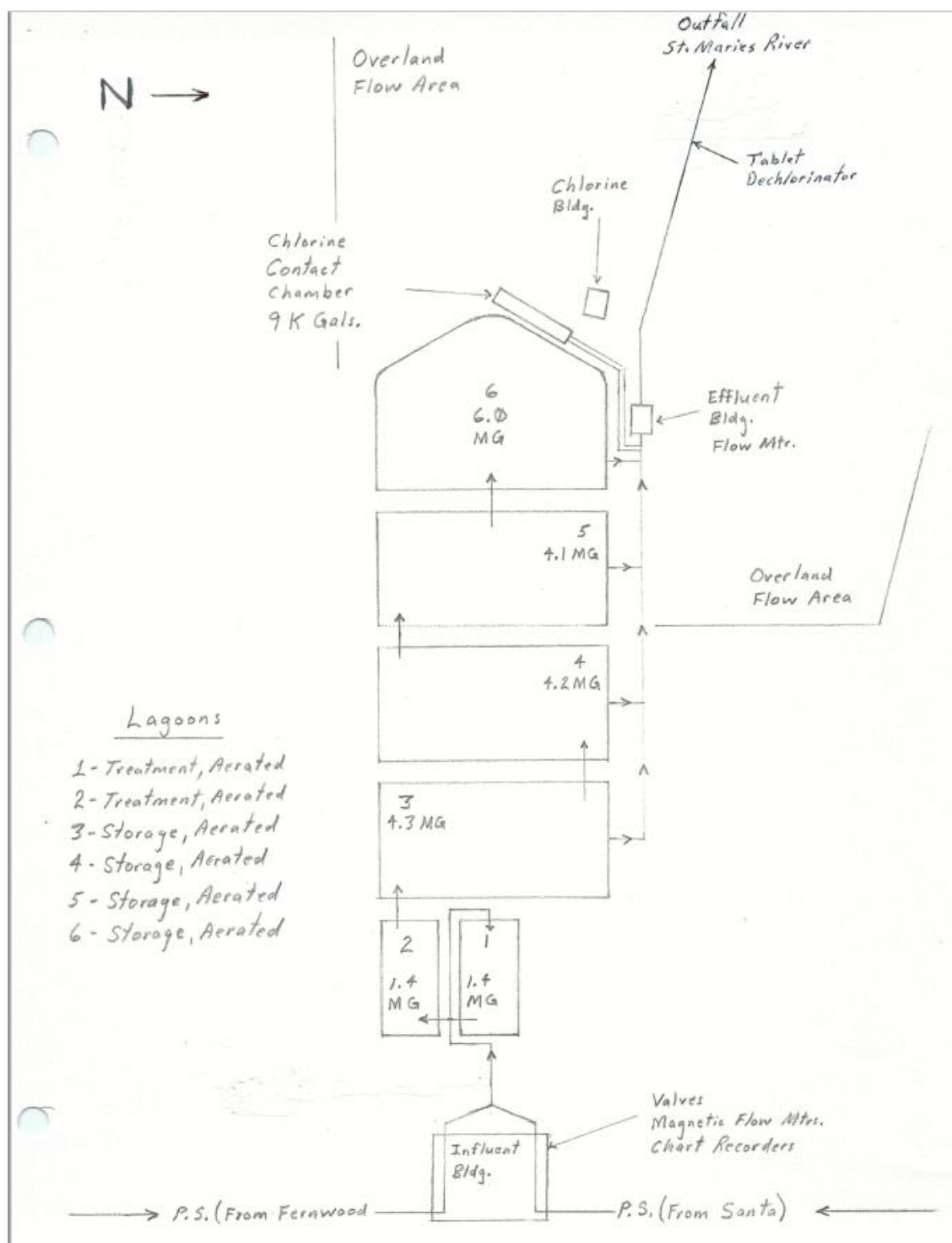
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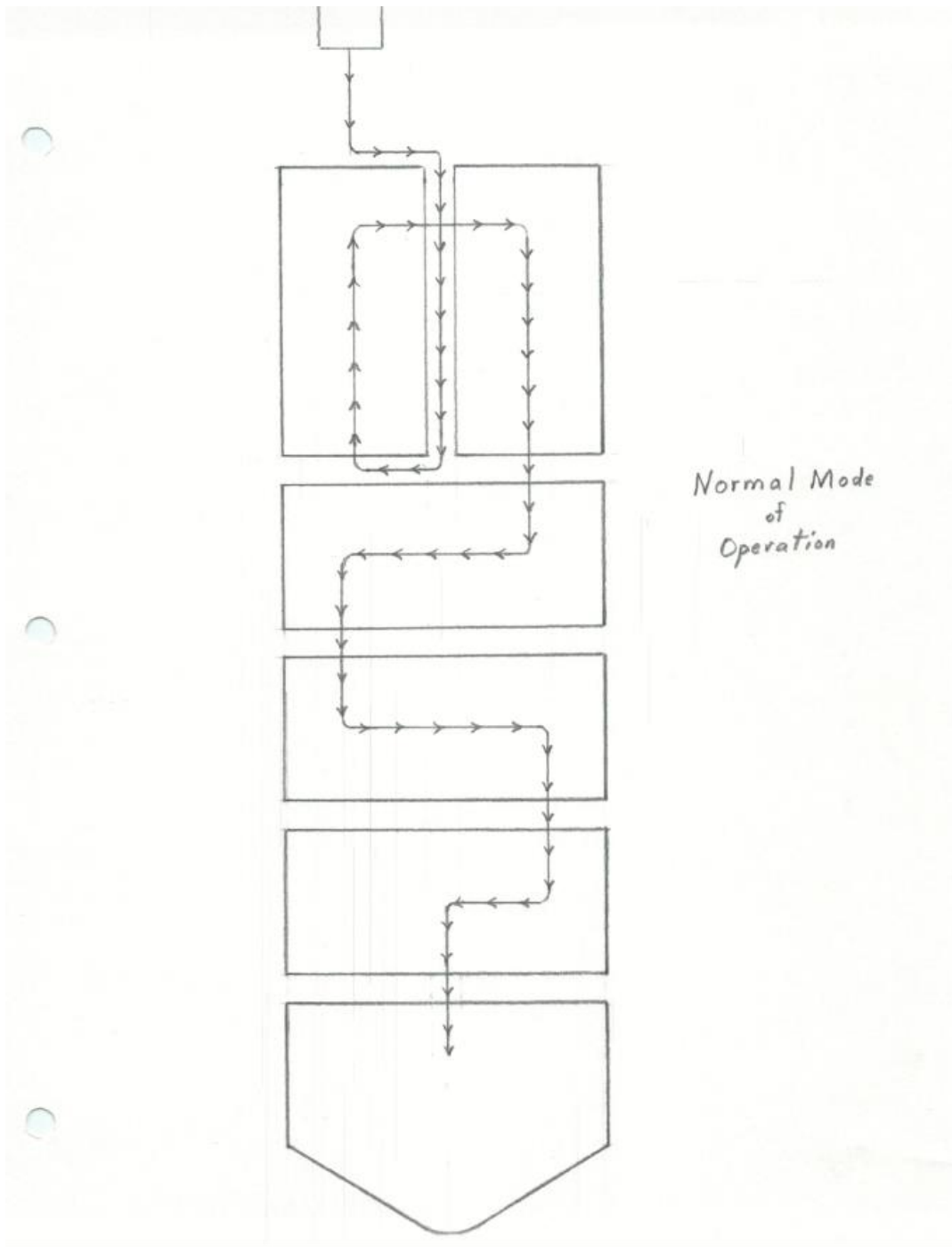
EPA. 1993. *Guidance Document on Dynamic Modeling and Translators*.

Appendix A. Facility Maps / Process Schematics

Process schematic:



Normal operation flow path:



Aerial photo of treatment facility and outfall location.



Appendix B. Technical Calculations

The results of the technical calculations are discussed above in sections 3.2 and 3.3 of the fact sheet.

A. Technology-Based Effluent Limits

The CWA requires POTWs to meet performance-based requirements based on available wastewater treatment technology. Section 301 of the CWA established a required performance level, referred to as secondary treatment, which all POTWs were required to meet by July 1, 1977. The EPA has developed and promulgated secondary treatment effluent limits, which are found in 40 CFR 133. These TBELs apply to all municipal wastewater treatment facilities and identify the minimum level of effluent quality attainable by application of secondary treatment in terms of BOD₅, TSS, and pH. Santa-Fernwood Sewer District meets the minimum level for secondary treatment criteria.

The concentration and removal rate limits for BOD₅ and TSS are the technology-based effluent limits of 40 CFR 133.102. As explained below, DEQ has determined that more-stringent water quality-based effluent limits are necessary for total residual chlorine, in order to ensure compliance with water quality standards.

B. Reasonable Potential and Water Quality-Based Effluent Limit Calculations

DEQ uses the process in the *Effluent Limit Development Guidance* (DEQ 2017) to determine reasonable potential. To determine if there is reasonable potential for the discharge to cause or contribute to an exceedance of water quality criteria for a given pollutant, DEQ compares the critical receiving water concentration to the water quality criteria for that pollutant. If the projected receiving water concentration exceeds the criteria, there is reasonable potential. Either a water quality-based effluent limit must be included in the permit, or DEQ may choose to provide accommodations through application of a mixing zone. This following section discusses how the maximum projected receiving water concentration is determined.

Mass Balance

For discharges to flowing water bodies, the maximum projected receiving water concentration is determined using the following mass balance equation:

$$C_d = \frac{(C_e Q_e) + [C_u (Q_u \times \%MZ)]}{Q_e + (Q_u \times \%MZ)}$$

Equation 1. Simple mass-balance equation.

Where:

C_d = downstream receiving water concentration	Calculated value
Q_e = critical effluent flow	From discharge flow data (design flow for POTW)
Q_u = critical upstream flow (1Q10 acute criterion, 7Q10 chronic, or harmonic mean)	From water quality standards
%MZ = percent of critical low flow provided by mixing zone	From mixing zone analysis
C_u = critical upstream pollutant concentration	From receiving water data

(90th to 95th percentile)

C_e = critical effluent pollutant concentration Calculated value using

A dilution factor (D) can be introduced to describe the allowable mixing. A dilution factor represents the ratio of the receiving water body low flow percentage (i.e., the low-flow design discharge conditions) to the effluent discharge volume and is expressed as:

$$\text{Dilution Factor} = D_f = \frac{(Q_s \times P + Q_e)}{Q_e} = \frac{(Q_s \times P)}{Q_e} + 1$$

Equation 2. Dilution factor calculation.

Where: D_f = Dilution factor
Q_s = Receiving water low-flow condition (cfs)
P = Mixing zone percentage
Q_e = Effluent discharge flow (cfs)

The above equations for C_d are the forms of the mass balance equation which were used to determine reasonable potential and calculate waste load allocations.

Critical Effluent Pollutant Concentration

When determining the projected receiving water concentration downstream of the effluent discharge, DEQ's *Effluent Limit Development Guidance* (DEQ 2017) recommends using the critical effluent pollutant concentration (C_e) in the mass balance calculation (see equation 1). To determine the C_e DEQ has adopted EPA's statistical approach that accounts for day-to-day variability in effluent quality by identifying the number of samples, calculating the coefficient of variation (CV) (Equation , below), and selecting a reasonable potential multiplying factor (RPMF) from the tables in the *Effluent Limit Development Guidance* (DEQ 2017).

$$CV = \frac{\text{Standard Deviation}}{\text{Mean}}$$

Equation 3. CV calculation.

$$C_e = MOEC \times RPMF$$

Equation 4. C_e calculation.

If the C_e exceeds water quality criteria then a reasonable potential analysis is conducted.

Reasonable Potential Analysis

The discharge has reasonable potential to cause or contribute to an exceedance of water quality criteria, referred to as a reasonable potential to exceed (RPTE), if the critical concentration of the pollutant at the end of pipe exceeds the most stringent WQ criterion for that pollutant. This RPTE may result in end of pipe limits or may be accommodated if the receiving water has sufficient flows during low flow conditions to provide a mixing zone, and the pollutant of concern does not have acute toxicity attributes. Other conditions may also be applicable that may restrict the use of a mixing zone for the pollutant of concern.

C. WQBEL Calculations

The following calculations demonstrate how the water quality-based effluent limits (WQBELs) in the permit were calculated. The permit includes WQBELs for total residual chlorine. The following discussion presents the general equations used to calculate the WQBELs.

Calculate the Wasteload Allocations (WLAs)

WLAs are calculated using the same mass-balance equations used to calculate the concentration of the pollutant at the mixing zone boundary in the RPA. WLAs must be calculated for both acute and chronic criteria. To calculate the WLAs, C_d is set equal to the appropriate criterion and the equation is solved for C_e . The calculated C_e is the WLA. Equation 5 is rearranged to solve for the WLA:

$$C_e = WLA_{(a \text{ or } c)} = \frac{WQC_{(a \text{ or } c)}[Q_e + (Q_u \times \%MZ)] - [C_u \times (Q_u \times \%MZ)]}{Q_e}$$

Equation 5. Simple mass-balance equation for calculating WLA for flowing water.

Where:

$WQC_{(a \text{ or } c)}$ = Pollutant water quality criterion (acute or chronic)	Calculated value
Q_e = Critical effluent flow	From discharge flow data (design flow for POTW)
Q_u = Critical upstream flow (1Q10 acute criterion or 7Q10 chronic)	From water quality standards
$\%MZ$ = Percent of critical low flow provided by mixing zone	From mixing zone analysis
C_u = Critical upstream pollutant concentration (90th to 95th percentile)	From receiving water data
$C_e = WLA_{(a \text{ or } c)}$ = wasteload allocation (acute or chronic)	Calculated from Equation 4

Idaho's WQC for some metals are expressed as the dissolved fraction. The rules regulating the IPDES program (IDAPA 58.01.25.303.03) require that effluent limits be expressed as total recoverable metal unless standards have been promulgated allowing limits specified in dissolved, valent, or total forms. A case-by-case basis has been established for limits specified in dissolved, valent, or total form, or all approved analytical methods for the metal inherently measure only its dissolved form. Therefore, the permit writer should calculate a WLA in total recoverable metal that will be protective of the dissolved criterion. This is accomplished by dividing the WLA expressed as dissolved by the criteria translator. As discussed in *Guidance Document on Dynamic Modeling and Translators* (EPA 1993), the criteria translator (CT) is equal to the conversion factor when site-specific translators are not available. Conversion factors for metals criteria are listed in DEQ's Water Quality Standards (WQS) at IDAPA 58.01.02.210.02. The WQS also lists several guidance documents at IDAPA 58.01.02.210.04 that are recommended for the development of site specific translators.

The next step is to compute the acute and chronic long-term average ($LTA_{(a \text{ or } c)}$) concentrations, which will be derived from the acute and chronic WLAs. This is done using the following equations from the *Effluent Limit Development Guidance* (DEQ 2017):

$$LTA_a = WLA_a \times e^{(0.5\sigma^2 - z_{99}\sigma)}$$

Equation 6. Acute LTA for toxics.

Where:

LTA_a = Acute long-term average

Calculated value

WLA_a = Acute wasteload allocation

Calculated value. See Equation .

e = Base of natural log

Approximately 2.718

σ = Square root of σ^2

$\sigma^2 = \text{Ln}(CV^2 + 1)$

Ln is the natural log

CV = Coefficient of variation

Calculated using field data. If 10 or less samples available, use default value of 0.6. See Equation 3.

Z_{99} = z score of the 99th percentile of the normal distribution

2.326

$$LTA_c = WLA_c \times e^{(0.5\sigma_n^2 - z_{99}\sigma_n)}$$

Equation 7. Chronic LTA average for toxics.

Where:

LTA_c = Chronic long-term average

Calculated value

WLA_c = Chronic wasteload allocation

Calculated value. See Equation .

e = Base of natural log

Approximately 2.718

σ_n = Square root of σ_n^2

$\sigma_n^2 = \text{Ln}[(CV^2)/n + 1]$

Ln is the natural log

CV = Coefficient of variation

Calculated using field data. If 10 or less, samples available use default value of 0.6. See Equation 3.

Z_{99} = z score of the 99th percentile of the normal distribution

2.326

n = Averaging period for the chronic water quality criterion (typically 4 days)

Varies

The acute and chronic LTAs are compared, and the more stringent of the two is used to calculate the maximum daily and average monthly limits.

Derive the Maximum Daily and Average Monthly Effluent Limits

Using the *Effluent Limit Development Guidance* (DEQ 2017) equations, the maximum daily limit (MDL) and average monthly limit (AML) are calculated as follows:

$$\text{Maximum Daily Limit} = LTA_m \times e^{(z_{99}\sigma - 0.5\sigma^2)}$$

Equation 8. Maximum daily limit for toxics.

Where:

LTA_m = Minimum long-term average value

Lesser value calculated from Equation and Equation

e = Base of natural log

Approximately 2.718

σ = Square root of σ^2
 $\sigma^2 = \text{Ln}(\text{CV}^2 + 1)$
 Z_{99} = z score of the 99th percentile of the normal distribution
 CV = Coefficient of variation

Ln is the natural log of base e
 2.326
 See Equation 3.

$$AML = LTA_m \times e^{(z_{95}\sigma_n - 0.5\sigma_n^2)}$$

Equation 9. Average monthly limit for toxics.

Where:

LTA_m = Minimum long-term average
 AML = Average monthly limit
 e = Base of natural log
 σ_n = Square root of σ_n^2
 $\sigma_n^2 = \text{Ln}[(\text{CV}^2)/n + 1]$
 Z_{95} = z score of the 95th percentile of the normal distribution
 n = Number of sample specified in the permit to be analyzed each month
 CV = Coefficient of variation

Lesser value calculated from Equation and Equation
 Calculated value
 Approximately 2.718
 Ln is the natural log of base e
 1.645
 Typically $n = 1, 2, 4, 10, \text{ or } 30$.
 See Equation 3.

Table 20, RPA calculations for water quality-based effluent limits.

Reasonable Potential Analysis (RPA) and Water Quality Effluent Limit (WQBEL) Calculations

Facility Name	Santa-Fernwood Sewer Project
Facility Flow (mgd)	0.1000
Facility Flow (cfs)	0.15470

Critical River Flows

Aquatic Life - Acute Criteria - Criterion Max. Concentration (CMC)
 Aquatic Life - Chronic Criteria - Criterion Continuous Concentration (CCC)
 Ammonia
 Human Health - Non-Carcinogen
 Human Health - carcinogen

	Annual	Crit. Flow	Unit
1Q10	25.88000		cfs
7Q10 or 4B3	30.52100		cfs
30B3/30Q10 (seasonal)	36.65700		cfs
30Q5	41.03600		cfs
Harmonic Mean Flow	114.44000		cfs

Receiving Water Data

Hardness, as mg/L CaCO₃
 Temperature, °C
 pH, S.U.

Hardness, as mg/L CaCO₃
 Temperature, °C
 pH, S.U.

	Annual
5 th prtile at critical flow	11
30 th - 95 th percentile	19
30 th - 95 th percentile	7.8

Pollutants of Concern		AMMONIA, default: cold water, fish, early life stage, prout	CHLORINE (Total Residual)
Effluent Data	Number of Samples in Data Set (n)		16
	Coefficient of Variation (CV) = Std. Dev./Mean (default CV = 0.6)		0.6
	Effluent Concentration, µg/L (Max. or 95 th Percentile) - (C _e)		130.00
	Calculated 50 th prtile Effluent Conc. (when n>10), Human Health Only		70
Receiving Water Statistics	90 th Percentile Conc., µg/L - (C _r)		0
	Geometric Mean, µg/L, Human Health Criteria Only		0
Applicable Water Quality Criteria	Aquatic Life Criteria, µg/L	Acute	19.
	Aquatic Life Criteria, µg/L	Chronic	11.
	Human Health Water and Organism, µg/L		--
	Human Health, Organism Only, µg/L		--
	Metals Criteria Translator, decimal (or default use Conversion Factor)	Acute	--
		Chronic	--
Percent River Flow	Carcinogen (Y/N), Human Health Criteria Only		N
	Aquatic Life - Acute	1Q10	0.0%
	Aquatic Life - Chronic	7Q10 or 4B3	0.00%
	Human Health - Non-Carcinogen and Chronic Ammonia	30B3 or 30Q10	--
	Human Health - Carcinogen	30Q5	--
Calculated Dilution Factors (DF) (or enter Modeled DFs)		Harmonic Mean	--
	Aquatic Life - Acute	1Q10	1.0
	Aquatic Life - Chronic	7Q10 or 4B3	1.0
	Human Health - Non-Carcinogen and Chronic Ammonia	30B3 or 30Q10	--
	Human Health - Carcinogen	30Q5	--
		Harmonic Mean	--

Aquatic Life Reasonable Potential Analysis

σ	σ ² =ln(CV ² +1)	--	0.555
P _z	=[1-confidence level] ^{1/z} , where confidence level =	99%	0.750
Multiplier (TSD p. 57)	=exp[σz-0.5σ ²]/exp[normsinv(P _z)-0.5σ ²], where	99%	2.5
Statistically projected critical discharge concentration (C _c)		--	474.34
Predicted max. conc.(ug/L) at Edge-of-Mixing Zone		Acute	474.34
(note: for metals, concentration is dissolved using conversion factor or translator)		Chronic	474.34
Reasonable Potential to exceed Aquatic Life Criteria		--	Yes

Aquatic Life Effluent Limit Calculations

Number of Compliance Samples Expected per month (n)		30	4
n used to calculate AML (if chronic is limiting then use min=4 or for ammonia min=30)		--	4
LTA Coeff. Var. (CV), decimal	(Use CV of data set or default = 0.6)	--	0.600
Permit Limit Coeff. Var. (CV), decimal	(Use CV from data set or default = 0.6)	--	0.600
Acute WLA, ug/L	C _d = (Acute Criteria x MZ _e) - C _e x (MZ _e -1)	Acute	19.0
Chronic WLA, ug/L	C _d = (Chronic Criteria x MZ _e) - C _e x (MZ _e -1)	Chronic	11.0
Long Term Ave (LTA), ug/L	WLA ₀ x exp(0.5σ ² -σz), Acute	99%	6.1
(99 th % occurrence prob.)	WLA ₀ x exp(0.5σ ² -σz); ammonia n=30, Chronic	99%	5.8
Limiting LTA, ug/L	used as basis for limits calculation	--	5.8
Applicable Metals Criteria Translator (metals limits as total recoverable)		--	--
Average Monthly Limit (AML), ug/L, where % occurrence prob =		95%	9
Maximum Daily Limit (MDL), ug/L, where % occurrence prob =		99%	18
Average Monthly Limit (AML), mg/L		--	0.009
Maximum Daily Limit (MDL), mg/L		--	0.018
Average Monthly Limit (AML), lb/day		--	0.008
Maximum Daily Limit (MDL), lb/day		--	0.015

Table 21. RPA calculations for water quality-based effluent limits with a mixing zone.

Reasonable Potential Analysis (RPA) and Water Quality Effluent Limit (WQBEL) Calcul:																																													
Facility Name	Santa-Fernwood Sewer Project																																												
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Critical River Flow	[IDAPA 58.01.02.03. 5]																																												
Aquatic Life - Acute Criteria - Criterion Max. Concentration (CMC)	1010	25.88000	afa																																										
Aquatic Life - Chronic Criteria - Criterion Continuous Concentration (CCC)	7010 or 4B3	30.52100	afa																																										
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Human Health - Non-Carcinogen	30Q5	41.09600	afa																																										
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Appendix C. Your Right to Appeal

Persons aggrieved, as specified in IDAPA 58.01.25.204.01.a., have a right to appeal the final permit decision to the Board of Environmental Quality. A Petition for Review must be filed with the Department's Hearing Coordinator within twenty eight (28) days after the Department serves notice of the final permit decision under IDAPA 58.01.25.107 (Decision Process).

All documents concerning actions governed by these rules must be filed with the Hearing Coordinator at the following address: Hearing Coordinator, Department of Environmental Quality, 1410 N. Hilton, Boise, ID 83706-1255. Documents may also be filed by FAX at FAX No. (208) 373-0481 or may be filed electronically. The originating party is responsible for retaining proof of filing by FAX. The documents are deemed to be filed on the date received by the Hearing Coordinator. Upon receipt of the filed document, the Hearing Coordinator will provide a conformed copy to the originating party. Additional requirements for appeals of IPDES final permit decisions can be found in IDAPA 58.01.25.204.

Appendix D. Public Involvement and Public Comments

A. Public Involvement Information

DEQ proposes to reissue a permit to Santa-Fernwood Sewer District. The permit includes wastewater effluent limits and other conditions. This fact sheet describes the facility and DEQ's reasons for requiring permit conditions.

DEQ placed a Public Notice of Application on date and date in name of publication to inform the public about the submitted application and to invite comment on the reissuance (or issuance) of this permit.

DEQ will place a Public Notice on 9/11/2019 in St. Maries Gazette Record to inform the public and to invite comment on the Idaho Pollutant Discharge Elimination System permit and fact sheet

The notice:

- Tells where copies of the permit and fact sheet are available for public evaluation (a local public library, the closest regional or field office, posted on our website).
- Offers to provide the documents in an alternate format to accommodate special needs.
- Asks people to tell us how well the permit would protect the receiving water.
- Invites people to suggest fairer conditions, limits, and requirements for the permit.
- Invites comments on DEQ's determination of compliance with antidegradation rules.
- Urges people to submit their comments, in writing, before the end of the comment period.
- Tells how to request a public hearing about the IPDES permit.
- Explains the next step(s) in the permitting process.



**Notice of Public Meeting on the Proposed
Santa-Fernwood Sewer District Idaho
Pollution Discharge Elimination System
Permit**

In compliance with the "Rules Regulating the Idaho Pollutant Discharge Elimination System Program" (58.01.25.109), the Idaho Department of Environmental Quality (DEQ) has scheduled a public meeting on the proposed Santa-Fernwood Sewer District Idaho Pollution Discharge Elimination System Permit (ID0022845). The meeting will be held on Wednesday, Oct. 23, 2019 at 6 p.m. at the CAF Building 64361 Hwy 3 South in Fernwood, Idaho.

The purpose of the meeting is to present the proposed discharge permit and fact sheet; explain the differences between the 2004 permit and the 2019 proposed permit; accept written public comment, and answer question from stakeholders on the proposed permit.

For additional information, contact:

Lori Flook
Idaho Department of Environmental Quality
Water Quality Division
1410 N. Hilton
Boise, ID 83706
Lori.flook@deq.idaho.gov



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B. Public Comments and Response to Comments

IPDES Permit No. ID0022845

Response to Comments on Draft Santa-Fernwood Sewer District IPDES Permit

October 30, 2019 comment deadline

Santa-Fernwood Sewer District September 18, 2019 Letter

1. Our facility was originally designed to treat, store, and discharge seasonally. Since we have so much storage capacity, we have been able to refrain from discharging during the summer months when the receiving stream is warm and flows are slow. We normally discharge during the winter and spring when the river is cold, our treated wastewater is cold, and the river is flowing strong and fast. We will continue to do this.

Response 1: The permit allows for discharge year round but does not require that effluent be discharged year round. No changes to permit or fact sheet as a result of this comment.

2. It is obvious that the new permit requirements will significantly increase operating costs. This is a low income area, with many people either retired or on disability. We already pay more than one hundred dollars per month for water and sewer services. We are going to have to increase sewer rates to provide the necessary funding to insure compliance. That will not set well with the residents.

Response 2: While the sewer rates are set by the sewer district, DEQ must develop and issue IPDES permits that comply with state and federal rules and regulations. However, DEQ made every effort to minimize financial impacts on the sewer district and their ratepayers.

3. Page 4. Of 36 Table 1

Headworks: A flow balanced, combined sample of the influent streams from Santa and Fernwood respectively.

Question: Does our current method of composite sampling meet this requirement?

Our current method is to collect a one qt. sample from Santa at each time – 0:800, 12:00, and 16:00. We also collect samples from Fernwood at each of those times. At the end of the day, the three samples from Santa are combined, also the three samples from Fernwood are combined. The final composite sample consists of 75% Fernwood sample and 25% Santa sample. This ratio is comparable to flows from each town, but is based on the number of sewer services in each town.

Response 3: The current sampling does not align with the permit requirements. At the time of each sample, the individual samples from the Santa inflow and Fernwood inflow the samples must be flow weighted (% of the sample from each influent line) based on the flows at the time of sampling. The samples should be combined at this point and placed on ice or in a dedicated refrigerator to ensure that the samples remain viable by reducing the sample temperature to below 6 °C but above 0 °C.

4. St. Maries River: The only location that is safe and accessible most of the year is from the bridge that crosses the river on Old County Road. It would be suitable unless the river is frozen.

Response 4: Please work with the IPDES compliance officer in the DEQ Coeur d'Alene regional office on the approval for the location. DEQ does not expect the sewer district to sample the river when it is frozen or during any condition which endangers the sewer district staff.

5. Page 6 of 36 Table 2: It is curious that both BOD and TSS composites are required at two per month, but % RMVL calculations are only required once per month. Is this Correct?

Response 5: In order to report the average monthly percent removal for BOD and TSS, calculations of the percent removal are expected to use the influent and effluent Average Monthly BOD and TSS values. Average monthly BOD and TSS calculations require at least 2 values for each parameter. These average BOD and TSS values are used to calculate percent removal.

6. Page 6 of 36 Table 2: Reporting column indicates (all months). Since this is an effluent sample pertaining to Outfall 001, we are assuming that it means all "discharge months", and we would indicate No Discharge on the DMR.

Response 6: That assumption is correct. On months that no discharge has occurred, the district would indicate "No Discharge" on that month's DMR.

7. Page 6 of 36 Table 2: Temperature. We will have to purchase and install the necessary equipment. The website listed under h. pertains to "open stream" temperature monitoring. Please provide information that we need in order to purchase the correct equipment.

Response 7: While the guidance document is for in-stream temperature monitoring, it does provide important information on quality assurance, information on commonly used manufacturers in the northwest, and data management. DEQ recommends that the district contact the different manufacturers and discuss with them which logger would be best for the monitoring requirements. Additionally, you may contact the IPDES compliance officer in the DEQ Coeur d'Alene regional office for assistance.

8. There will be times when we will not be in compliance with the TCR Daily Maximum of 0.02. We occasionally have a higher TCR than that and a significant increase of Calcium Thiosulfate has no effect on it.

The Hach company explains that there are many chemicals in water and wastewater that they call interferences, that provide a false positive result with the DPD method. They say that manganese is especially troublesome, and we have high levels of manganese in this area.

Could the Daily Maximum be increased to account for false positives?

Response 8: The method detection limit for chlorine is 50 µg/L, which is used as the compliance evaluation level for this parameter. Table foot note i for table 2 of the permit states:

The limits for chlorine are not quantifiable using EPA-approved analytical methods. The method detection limit for chlorine is 50 µg/L. DEQ will use 50 µg/L as the compliance evaluation level for this parameter. The permittee will be compliant with the total residual chlorine limits if the

average monthly and maximum daily concentrations are less than 50 µg/L and the average monthly and maximum daily mass loadings are less than 0.05 lbs/day. For purposes of calculating the monthly averages, see Section 2.2.2 of the permit.

9. Page 8 of 36 2 Middle Dot: This does not seem to be applicable for the parameter – TCR. Is this requirement exempted by 2.1.6 and Table 2i?

Response 9: Since the effluent limits are below any EPA approved method, the footnote for TRC applies.

10. Page 10 of 36 Table 4: Again, since these are effluent samples pertaining to Outfall 001, we assume that sampling would only be required during “discharge months” rather than all months, and we would indicate No Discharge on the DMR. Is this correct?

Response 10: That is correct; reporting “No Discharge” on monthly DMR’s is still required.

11. Page 13 of 36 2.1.5: The last sentence above Table 6 “In addition, the permittee must continue permit renewal effluent monitoring at a frequency of once every fifth quarter after the last scan listed in the schedule above until a new permit is issued.” Should 2022 not indicate Third Quarter?

Response 11: Knowing that the facility generally does not discharge during the third quarter (July-September), the schedule was set to better align with the observed discharge periods.

12. Page 22 of 36 3.5 Lagoon Seepage Testing:

Our engineering firm and IDEQ agreed that standard seepage testing techniques were not suitable at our facility. The ground water table was higher than the lagoon floors. Our engineering firm proposed a “plan of study” to IDEQ that included drilling test/monitoring wells at strategic places around the lagoon system October 2012. IDEQ approved the plan of study and the District followed the approved plan beginning in November 2012 with the surface water testing, March 2013 with ground water testing. We measured temperature, pH, conductivity, and sampled for Ammonia, Nitrate, and Total Phosphorus through Aug 2014.

The results indicated no lagoon seepage impact to surface water, and very minor to no impact to shallow ground water. Mr. John Tindall, from IDEQ’s regional office in Cd’A was satisfied with the report’s conclusion. However he visited our facility with an official from IDEQ’s Boise office who discounted the approved and completed study. We have not heard anything more from IDEQ, and are puzzled about the whole situation.

Response 12: Lagoon Seepage testing is required to be done every 10 years per the DEQ Wastewater rules. It is recommended that SFSD’s ground water monitoring protocol used in 2012-2014 be submitted to Coeur d’Alene Regional Office for review and approval and possible use to show compliance with the Wastewater Rule’s lagoon seepage testing requirement. Please contact the Coeur d’Alene Regional Office for more information.

Multiple Standard Text Letters Received on September 25, 2019

13. Comment: I am greatly disturbed by the thought of our sewer rates going up again because of your ridiculous regulations. I already pay an exorbitant amount and cannot afford even higher bills.

I politely ask you to hold a public meeting so our community can get some answers and discuss this like civilized folks.

Response 13: While the sewer rates are set by the sewer district, DEQ must develop and issue IPDES permits that comply with state and federal rules and regulations. However, DEQ made every effort to minimize financial impacts on the sewer district and their ratepayers. Since the last permit was issued in 2004, EPA had increased monitoring requirements for similar sized facilities in permits they issued. The buried diffuser study, now labeled as a compliance schedule in the permit, is required due to the unknown environmental impacts of the buried diffuser. To DEQ's knowledge there has not been a diffuser mixing zone study.

A public meeting was held in Fernwood on October 23, 2019.

Multiple Standard Text Letters Received on September 25, 2019

14. Comment: As a customer of the Santa-Fernwood Sewer District, I am requesting a public meeting regarding the new wastewater Discharge permit NO. ID0022845.

Response 14: A public meeting was held in Fernwood on October 23, 2019.

Anna Olson, Written Comment Received on October 23, 2019

15. Comment: As concerning the meeting on October 23, 2019, I would like to see the facility restored to not discharging into the river, but rather used as irrigation of a crop.

Response 15: A decision to return to land application for effluent is that of the sewer district. The 2012 facility plan did look at the old land application site and stated that the size is not large enough for the amount of waste water generated at the time. Since then, there have been improvements to the collection systems to reduce inflow and infiltration. A review by a licensed engineer would have to determine the state of the old system and if land application is feasible. The district would have the opportunity to pursue this option again by seeking a reuse permit from DEQ.

Sandra Anderson, Written Comment Received on October 23, 2019

16. Comment: What happens with the buried diffuser we paid for if the pipe takes its place? How much did we pay for the diffuser? And who said we had to get it?

Response 16: If the district chooses to replace the diffuser with a direct discharge pipe then the pipe leading to the diffuser would need to be physically separated from the new discharge pipe and sealed so no discharge to the abandoned diffuser is possible. In 1979 a facility planning

process was finalized for investigating different possibilities of treatment facilities for the communities of Santa and Fernwood, respectively. Several options were presented in the document including independent treatment facilities for each community or a joint facility that would serve both communities. Ultimately, it was up to the sewer districts to decide on what course of action to choose with the result being the joint sewer district and facility for both communities being built (including the diffuser) in 1982. Please contact the sewer district for the reason that a buried diffuser was chosen, what the buried diffuser cost, and who decided it was necessary.

Stuart Hurley, Mountain Waterworks Comment Received on October 30, 2019

17. The purpose of this letter is to provide public comment on the draft Idaho Pollutant Discharge Elimination System (IPDES) permit and associated Fact Sheet for the Santa-Fernwood Sewer District Treatment Facility.

The largest concern with the Draft Permit is a mixing zone not being authorized by Idaho DEQ. Below is a summary of our understanding and comments based on the available information provided in the Draft Permit and Fact sheet.

Section 2.1.6 of the Fact Sheet identifies Outfall 001 as being a buried diffuser constructed in 1983, at a depth of approximately 3 feet beneath the river channel.

Section 3.3.2 of the Fact Sheet states “Due to lack of information and concerns on how mixing is occurring with Santa-Fernwood Sewer District’s use of a buried diffuser, a mixing zone will not be granted at this time.”

Section 5.2 of the Fact Sheet discusses DEQ’s concerns related to mixing due to the buried diffuser and potential temperature differential between the effluent and receiving water. The temperature differential concern appears to be associated with a “...thermal sink provided by the overburden.”

The EPA issued the most recent NPDES discharge permit for the facility in 2004. As part of that permit development, a mixing zone size of 25% was granted and utilized for determining reasonable potential calculations (see attached table from the 2004 Permit Fact Sheet). The State of Idaho’s water quality standards were applied for permit development. The fact sheet also states “In accordance with state water quality standards, only the Idaho Department of Environmental Quality may authorize mixing zones. The reasonable potential calculations are based on an assumed mixing zone of 25% for aquatic life. If the State does not authorize a mixing zone in its 401 certification, the permit limits will be re-calculated to ensure compliance with the standards at the point of discharge.”

The diffuser was installed in 1983, the construction plans were approved by DEQ prior to installation, and multiple discharge permit renewals have occurred since then. Although we understand that some regulatory conditions have changed since 2004, both the EPA and DEQ have been involved in reviewing operational data, permit limits, and approving final permit conditions for 36 years with the diffuser in place. A public records request was submitted for the 2004 NPDES DEQ 401 certification, but DEQ responded that there is no information associated

with the request. Based on the history of the system, it appears there is adequate information available for granting a mixing zone.

The Idaho Mixing Zone Implementation Guidance issued by the DEQ in December of 2016 states in section 2.4.1.3 that diffusers generally result in more rapid mixing compared to structures located on the bank perpendicular to stream flow. Additionally, it also states that DEQ encourages, but does not require, diffusers for discharges to flowing waters. Section 2.5 states “Idaho WQS do not require a submerged discharge point for new or existing discharges into flowing waters. However, a submerged discharge is preferable because it enhances hydrodynamic mixing. For new discharges into nonflowing waters, diffusers are required (IDAPA 58.01.02.60.01.h.ii.3).”

The 2019 Draft Permit and Fact Sheet do not provide specific data or information to fully describe the concerns related to lack of mixing and no mixing zone being re-authorized. This approach penalizes Santa-Fernwood for having a diffuser in operation that is encouraged in DEQ’s own mixing zone guidance.

Loss of the mixing zone could have dramatic impacts to the operation, expense, and ability of the Santa-Fernwood treatment facility to meet current and future permit conditions. The District has very limited resources and available funds to complete the mixing zone study as required in the Draft Permit. We believe that the Idaho DEQ should directly assist the District with assessing the diffuser and associated mixing zone analysis.

If DEQ does not authorize a mixing zone, there have been discussions related to the potential of abandoning the diffuser and installing a direct pipe discharge into the receiving water. The operational conditions associated with a pipe discharge are well known and a relatively simple analysis can be completed to determine the mixing zone for that case. We request the Final Permit offers the District an option to either conduct the mixing zone study for the buried diffuser or to install a direct pipe discharge with known mixing zone conditions identified by the Idaho DEQ.

We appreciate the opportunity to comment on the Draft Permit and Fact Sheet issued by the Idaho DEQ. Please contact me at your convenience with any follow up questions or comments.

Response 17: The EPA fact sheet for the 2004 permit was part of a consolidated fact sheet addressing 15 facilities in total. The amount of information EPA presents on Santa-Fernwood is very limited. The fact sheet makes no mention of a diffuser and incorrectly states that the facility discharges directly to St. Maries River. It is possible that the last permit writer did not know the diffuser was buried under the substrate.

In the question of adequate information available for granting a mixing zone, no inspections or data have been collected since the diffuser was installed. DEQ is unaware of any mixing zone study that confirms the diffuser is functioning properly. Modeling using CORMIX, by DEQ, showed the possibility that the effluent plume is attached to the bottom of the Saint Maries River when it emerges from the substrate. The location where it emerges from the substrate is equally nebulous. DEQ is also concerned about the impact on the invertebrates within the substrate when exposed to elevated ammonia during cold weather discharges.

The Idaho Mixing Zone Implementation Guidance, like other guidance, is an interpretation of rules and regulations. While Section 2.4.13 does state that diffusers result in more rapid mixing, it clearly refers to discharging to flowing waters. The Santa-Fernwood diffuser, however, does not discharge to flowing waters but rather is buried in the substrate (hyporheic zone) of the Saint Maries River. The buried location of the diffuser inhibits the initial jet mixing that makes diffusers effective. That initial mixing is why submerged, but not buried, diffusers are preferred in the guidance document.

A discussion of the CORMIX modeling results on why a mixing zone cannot be granted without more information has been added to the fact sheet. Additionally, an alternative to the diffuser study has been added, which includes abandoning the diffuser and installing a surface discharge. DEQ recommends that the surface discharge should be at least a foot above the bank full water level. Modeling in CORMIX has shown that if the placement of a pipe above the surface with a significant drop, mixing can be achieved almost immediately.

Matthew Nykiel, Idaho Conservation League Comment Received on October 30, 2019

18. Effluent Monitoring

Table 4 in the 2019 Santa-Fernwood Sewer District (SFSD) Permit identifies effluent monitoring requirements. We request DEQ explain how a 1/month sample frequency for total phosphorus and ammonia will provide sufficient data for a reasonable potential analysis (RPA). The SFSD facility states that it only discharges between January and May, and we are concerned that the current sample frequencies for nutrients will not provide sufficient for DEQ to conduct an RPA, when SFSD seeks to renew this permit. We're similarly concerned that the nutrient sample requirements in Table 5 of the 2019 SFSD Permit are too infrequent, and that without more data, DEQ will be unable to characterize the quality of the receiving water and determine the loading capacity. We request DEQ increase the sampling frequencies of effluent and receiving water for nutrients or explain how these sampling frequencies will produce sufficient data for future water quality analysis.

Response 18: The sampling frequency is sufficient to perform a reasonable potential analysis. If the permittee discharges every month as described in the comment then they will have collected 25 samples. This is above the RPA's sample size requirement for calculating a coefficient of variation from the data rather than using a default of 0.6 for smaller data sets. The frequency is actually an increase from the last permit. The last permit required sampling for one year, in 2006, and at times when the facility was not discharging. No changes are made as a result of this comment.

19. Please explain "Note g." on page 19 of DEQ's Factsheet. It is unclear why limits for chlorine are not quantifiable using EPA-approved analytical methods.

Response 19: The EPA approved methods do not have a sufficiently low method detection limit to quantify total residual chlorine at the level of the permit limit, which is based on the water

quality criterion. Therefore the compliance evaluation level is set at the method detection limit of 50 µg/L. This is consistent with other permits issued by DEQ and EPA.

20. Lagoon Seepage Testing

We request DEQ add lagoon seepage testing requirements in the Special Conditions section of the 2019 SFSD Permit, according to the Wastewater Rules in IDAPA 58.01.16. These rules require “existing lagoons” to be seepage tested by an Idaho licensed professional engineer, an Idaho licensed geologist, or by individuals under their supervision by April 15, 2012. It is unclear from DEQ’s Factsheet whether or not the SFSD lagoons have every been seepage tested per the regulations. Although, SFSD’s 2018 Application indicates that traditional seepage testing was not feasible with its lagoons because the groundwater table was too high. The Wastewater Rules also require lagoons municipal wastewater lagoons be seepage tested every ten years after the initial testing. We request DEQ provide the dates of any seepage testing conducted for SFSD’s lagoons according the regulations in the Wastewater Rules since 2009. In addition, we request DEQ provide the seepage rates from the most recent seepage test for all of SFSD’s lagoons.

We also request that DEQ include requirements in Section 3.5 of the 2019 SFSD Permit that outline a timetable and deadlines for seepage testing of SFSD’s lagoons. If DEQ declines this request, we further request DEQ to explain why it is appropriate for DEQ to set specific requirements in sections 3.1 – 3.4 but not in Section 3.5 for Lagoon Seepage Testing.

Response 20: Seepage testing was determined to be impossible in 2012 due to high ground water. No seepage rates were determined. A subsequent ground water study was conducted in 2013 and 2014. DEQ has identified seepage testing or a ground water study in the permit Section 3.5 to show compliance with the Wastewater Rules, and assure proper operation and maintenance is occurring as required in the IPDES Rules.

Henry Lewis, Chairman, Santa-Fernwood Sewer District on October 30, 2019

21. We may be confused on this point, but section 2.1.1 table 3 requires Flow, BODs, and TSS reporting (All months). Since we have wastewater influent twelve months of the year, we are assuming that we are required to obtain 24 BODs samples and 24 TSS samples annually.

Response 21: That is incorrect. Samples must be collected in months where discharge is occurring. All months were listed in the table since the permit authorizes discharges to occur during any, and all, months. However, influent samples need only be collected in months when discharge occurs. The purpose of the influent monitoring here is to help calculate percent removal of BOD and TSS.

22. As discussed at the public meeting, Santa and Fernwood have been designated as “economically distressed” communities. Having an affordable IPDES permit is a huge concern. The public was shown a slide entitled “Monitoring Costs Compared”. Although this slide addresses monitoring cost in part (not including labor or a three hour round trip to the lab), it gave most attendees the impression that their personal rate increase would be 0.55 per month.

This is completely out of line with what the cost increase will be, based on the Draft copy of the new permit for the following reasons:

Response 22: During the presentation of this slide it was conveyed that the estimated increase shown was for monitoring only and not associated labor cost or other requirements of the permit. While DEQ must develop and issue IPDES permits that comply with state and federal rules and regulations, DEQ made every effort to minimize financial impacts on the sewer district and their ratepayers. DEQ will address each part of the list in the comments below.

23. Permittee must develop and submit a sludge management plan and report, Sec 2.1.3. This will cost additional labor costs.

Response 23: DEQ has amended this section and removed the initial requirement of developing a sludge management plan. The monitoring of each lagoon's sludge depth has been changed to once per permit cycle; a sludge management plan may still be required if sludge depth is found to be impairing lagoon treatment efficiency.

24. Permittee must submit an inflow and infiltration evaluation. Planning, scheduling, reporting Sec. 3.3 this will cause additional labor costs, although we have been doing Inflow and infiltration work already, we have not had to submit a formal evaluation or report.

Response 24: A formal evaluation was done during the last facility planning effort prior to the 2013 upgrades. The permit requires an annual report of what improvements have been made based on that formal evaluation. The other required I/I report is for the district to identify what improvements are planned and scheduled during the next permitting cycle.

25. Permittee must develop and implement a spill control plan, Sec. 3.4. We have been using common sense practices, but have not been required to implement a formal plan. This will increase labor costs, and probably require the purchase of spill containment vessels.

Response 25: The spill control plan should be a part of the operations and maintenance (O&M) manual. An inspection of Santa-Fernwood Sewer District facility in December of 2017 found that the O&M manual on site was not up to date with current operations. The report also stated that the district was working on updating the manual. Spill containment vessels should be in place for the liquid chlorine container as part of BMPs. Currently, without spill containment the facility is at elevated risk of exposing personnel to uncontained chemicals and discharging those chemicals to the environment.

26. Permittee must develop a legally enforceable code or sewer use ordinance, Sec 31. This will cause increased labor and legal fees.

Response 26: A legally enforceable code or sewer use ordinance, or an approved alternative such as a multijurisdictional agreement or private contracts, should have already been in place as required by the Clean Water Act. The purpose is to protect the district from receiving wastes that could upset the treatment process or pass through the plant and cause harm to the Saint Maries River. The district has the authority to control what enters the districts collection system and treatment facility under Idaho Code 42-3212.

27. The lagoon seepage test submittals to DEQ must be up to date, Sec 3.5. We have completed the testing, following a DEQ approved plan, and the DEQ decided that they did not like the plan. We have no idea how to proceed from here.

Response 27: No record of DEQ disapproving the testing has been found. Idaho Wastewater rules require seepage testing of lagoons every 10 years. Please contact the DEQ regional office in Coeur d'Alene for further information on seepage testing requirements.

28. During the Public meeting, DEQ had not been advised of the cost estimate to complete the Diffuser Study, Sec. 3.2. We reported an earlier quote of \$10,000. An updated quoted is \$10,000 to 15,000. This is a large expense for small communities, and the funds are not available at this time.

Response 28: Similar to comment 17 from Mountain Water Works, DEQ has amended the permit to include an option to abandon the diffuser and install a direct discharge to the Saint Maries River.

29. Permittee must observe the receiving water once per week at the Diffuser, Sec. 1.2.1 this requirement and 6) above will require a trail to be built through the river's bottom land. The vegetation is canary grass and hawthorne brush. Trenches have to be crossed that were cut by the river's current during flood stage. The trenches cannot be crossed safely when they are full of water. This will be a snowshoe trip in the winter. This requirement will also cause an increase in labor cost.

Response 29: Section 1.2.1 is required to insure compliance with the narrative water quality standards of no discharge of floating, suspended or submerged matter. This narrative standard is not new and appears in the 2004 permit. The only way to ensure this narrative requirement is being met is to visually inspect the discharge. Personal safety should always be a priority and, if the discharge site cannot be reached due to safety concerns, then accommodations must be provided or the reason why visual observation of the discharge point could not be made should be noted in the log book. Vegetation should be removed to provide ease of access to the site.

30. If we are correct at interpreting A) above, as-read, this will result in a large increase of labor costs, lab fees, and transportation cost.

Response 30: Please see the response 21 above.

31. Permit renewal Effluent Monitoring, Sec. 2.1.5. This is a 24 hour composite sampling, maximum six hour interval (4 minimum aliquots). It will require additional labor costs.

Response 31: The 24-hour composite sampling requirement is a federal regulation and has been required since at least 8/4/1999 per the instruction for EPA form 2A (NPDES application for POTWs). This cost should already be known since Santa-Fernwood sampled in this manner when their application for renewal was last submitted. While DEQ must develop and issue IPDES permits that comply with state and federal rules and regulations, DEQ made every effort to minimize financial impacts on the sewer district and their ratepayers.

32. Sampling cost associated with the Diffuser Study are unknown, but there will likely be several ammonia samples per round of testing, which would be determined by the engineers and approved by DEQ.

Response 32: Similar to comment 17 from Mountain Water Works, DEQ has amended the permit to include an option to abandon the diffuser and install a direct discharge to the Saint Maries River.

33. Purchasing a dissolved oxygen meter.

Response 33: Dissolved oxygen monitoring is part of the federally-required application for renewal sampling that the district has done and must do during this permit. Additionally, hand held dissolved oxygen meters are readily available.

34. Update QAP to QAPP to reflect new permit requirements and to an approved format. Again, this will increase labor costs. Sec. 4.1.1

Response 34: A 2017 inspection found that the QAP was not up to date with current practices as required in the 2004 permit. The requirements in the new permit do not require that the entire document be rewritten but rather updated to reflect any changes in monitoring or procedures since the previous permit. The permit allows for six months for the update to be complete and DEQ is no longer requiring permittees to notify DEQ of the QAPP changes. Verification that the QAPP is current will occur during inspection.

35. The District request a discharge period of November through May if this will provide us with more favorable permit limits. The main reason given for the year-round discharge period was to accommodate the Diffuser Study. We are also requesting that the protocol submittal date listed in Sec. 3.2 be extended to December 31, 2020.

Response 35: Since the option for the diffuser study will remain in the permit, the discharge period will remain year round. Additionally, changing the discharge period to November through May does not give the facility any significant change in permit limits because the critical low flows only increase by a few cfs. Since a new option is written into the permit, the district will have additional time to decide whether they want to abandon the diffuser or proceed with the diffuser study.

36. We are considering eliminating the Diffuser Study, which will cost ten to fifteen thousand dollars, which the District does not have at this time, and which could produce unfavorable results. Since our permit writer has verbally assured us that we would be granted a mixing zone be merely altering the outfall, we would prefer to spend the money on that project, since we have an assured outcome.

Response 36: As stated in other responses, the option of abandoning the diffuser for an alternative discharge was written into the final permit. Any alternative outfall configuration must be designed so that rapid mixing will occur.

37. The time extension was suggested by our engineering firm to properly evaluate options, make recommendations, and to submit plans and specs. It will also enable the District to seek some form of grant funding.

Response 37: DEQ has modified the compliance schedule to allow additional time for the district to decide which path of action to pursue.

38. One suggestion regarding low flows of the river would be to monitor the Mashburn river gage on the weekdays, and decrease our discharge flows proportionately.

Response 38: The permit does not have a requirement to manipulate discharge flows based on the river flow rates. Limits based on continuous river flows are complicated and could possibly require hourly adjustments depending on conditions. As the district has already stated budget concerns this course of action would certainly increase district labor costs.

To ensure compliance with loading limits, the facility should not discharge above its design flow. If the effluent discharge is at a rate higher than the design flow, the potential for effluent loading violations increases even if the concentrations are within limits. This is due to the fact that loading is a calculation based on the concentration and the discharge flow rate.

39. We would really prefer not to discharge at all in the summer months due to public perception during primary contact recreation months.

Response 39: While the permit authorizes discharge year round it does not mean the district must discharge year round. The facility can determine when it will discharge.

Johanna Bell, Association of Idaho Cities on October 30, 2019

Submission Schedule:

40. Issue #1: AIC suggests that the compliance activities and dates that set forth in the draft Permit's Submission Schedule on page 2 may not present a complete list.

Recommendation: 3

AIC suggests that the final Permit continue to include a comprehensive Submission Schedule table, but to also include the following deadlines:

- Begin river monitoring
- 2020 – 1st Quarter Permit Renewal Effluent Monitoring
- 2021 – 2nd Quarter Permit Renewal Effluent Monitoring
- 2022 – 4th Quarter Permit Renewal Effluent Monitoring

Explanation:

A complete table of submittals with dates and Permit Section references may help keep the District on track.

Response 40: River monitoring must begin when the permit is effective as the permittee is required to report results on the DMR. The previous permit required a monitoring station be approved by DEQ and EPA (2004 Permit Sec. I.B.1). DEQ was not able to find a record of this approval, so it was included in this permit. The permittee was made aware of this requirement at the beginning of permit development but DEQ has not received a request for approval. The

permittee should monitor at their proposed monitoring site until a final site is approved. The submission schedule already includes a date for the data collected for permit renewal monitoring purposes to be submitted all at once with the application for renewal.

Facility Design and Operation Information in the Fact Sheet

41. Issue #2: Additional and Corrected Facility Information Could be Included in the Fact Sheet

Recommendation:

That Section 2.1 of the Fact Sheet include a more complete description of the facility including:

- a note that the population served has slightly declined according to the past two or three census reports; and,
- how the DEQ has developed a preliminary model of the diffuser's effluent mixing behavior during annual critical flow conditions.

Explanation:

The 2000 US Census reported a population of 684 for Fernwood.¹ Comparing this population with the current populations served (i.e., 100 in Santa and about 573 in Fernwood) suggests that the population has essentially remained the same or has slightly declined over the years.

AIC understands the unique situation the District and DEQ find themselves in with respect to the DEQ-proposed complete removal of the authorized mixing zone,² and the resulting conservative effluent limits that are now below EPA approved laboratory method detection limits for the toxin Total Residual Chlorine (TRC). These are significant changes from the administratively extended permit issued by Region 10 of the US Environmental Agency (EPA-R10) in 2004 and may present costly, compliance issues for the District.

AIC encourages additional discussions between the District leadership, engineers, and DEQ staff so that suitable permit requirements and schedules can be developed to address these difficult issues.

Response 41: DEQ discussed these issues with AIC and the district, and the fact sheet has been edited to include a more robust explanation of what the initial modeling found in regards to the buried diffuser. Additional time was also granted for the district to weigh its options with regards to the outfall.

42. Issue #3: Variable, Seasonal Effluent Discharge Authorization

Recommendation:

AIC suggests that DEQ staff work with the District to explore the option of authoring variable, seasonal effluent discharges to the St. Maries based on real-time flow and effluent conditions.

Explanation:

AIC suggests that the final Permit might take into account the large amount of on-site effluent storage, the District's request for a seasonal effluent discharge authorization, and allow the District to use the Mashburn river gage monitoring to base their discharge activities.

Response 42: The district has raised the same questions. Please see the responses 35 and 38 above for the letter from Hank Lewis.

Effluent and Receiving Water Monitoring

43. Issue #4: Potential Data Quality Impacts when Updates to, and IDEQ Review of, Monitoring Quality Assurance Project Plans (QAPPs) May Be Warranted Prior to Data Collection and Reporting

Recommendation:

To ensure the District's effluent monitoring and sampling data are correct and reflect actual facility operations, AIC suggests that effluent monitoring QAPP submittal(s) occur prior to data collection and NetDMR submittal deadlines.

Explanation:

As stated in Section 2.1.6.1, "The permittee must develop and implement a QAPP that conforms to the quality assurance and quality control requirements of 40 CFR 136.7. The requirements for a QAPP are in section 4.1.1 of this permit." This Section goes on to state additional requirements that support the collection and reporting of accurate effluent monitoring results. AIC understands the importance of ensuring monitoring data are correct and the very important role QAPPs play. Therefore, AIC suggests it is appropriate for the QAPP to be developed and submitted prior to the initial monitoring data submittals via the NetDMR.

Response 43: The QAPP update is just for any new monitoring procedures as parameters that have been monitored in the past should already be included in the QAPP.

Delaying the QAPP update or effective date of the permit are not preferred options since the pervious permit has limits based on an incorrect design flow causing the limits to be higher than those calculated using the correct design flow of the facility.

44. Issue #5: Insufficient Time may be Provided in the Draft Permit to Establish Receiving Water Monitoring Stations

Recommendation:

AIC suggests that the final Permit provide until 06/01/2020 for the submission of monitoring station designs and locations for approval; and to provide additional time for the District to adopt the necessary budget, and to develop and verify the necessary sampling plan and QAPP (04/01/2021) prior to the station installation date (06/01/2021), and data collection deadline (07/01/2021).

Explanation:

The draft Permit states that submission of monitoring station approval and data collection must begin by 02/29/2020. Given the current winter conditions, coupled with the need to submit a QAPP for DEQ review, AIC suggests that additional time may be warranted.

Idaho has experienced record-breaking cold during the month of October. Given the resulting winter conditions, additional time may be necessary in order to select, design, obtain approval for, and construct receiving water monitoring stations in the St. Maries River. It can take significant time, effort, potential legal work and coordination with outside agencies to design and obtain access to receiving water monitoring stations.

Response 44: DEQ is not requiring the construction of a water quality monitoring station like the ones used by IDWR and USGS. The district has, in the past, monitored the St. Maries River upstream for collecting grab samples. The district has been aware that this requirement was going to be in the permit and DEQ suggested that they submit a request early to the DEQ regional office. At this point, no such request has been received.

The purpose of DEQ approving the monitoring station is to ensure the site is representative of the instream conditions at the point of discharge. Further DEQ recognizes that access can be an issue and adequate safety should always be observed, but monitoring locations should be as close to the discharge as possible to ensure that influences from nonpoint source pollutants is minimized.

45. Issue #6: Downstream River Monitoring During Months that the Facility Does Not Discharge

Recommendation:

AIC suggests that the final Permit only require downstream receiving water monitoring during those months the District's system actively discharges effluent.

Explanation:

AIC understands that the potential effects to the St. Maries while effluent is being discharged must be understood through a receiving water monitoring program. However, AIC also understands that the District may now be seeking authorization for seasonal discharges, using a system that has more than ample lagoon space to store their effluent during most of the year. AIC suggests that, if the DEQ is looking for additional receiving water data, that the DEQ and the District meet to discuss these needs and how the two entities can voluntarily work together, possibly with other basin stakeholders, to develop a useful, and appropriately funded, basin monitoring program.

Response 45: The permit is not requiring downstream monitoring at this time. The only requirement is to identify a downstream site that could be used for monitoring if future permits require it.

Public Meeting Held on October 23, 2019

Comments were made and answered during the public meeting. The comments made during the meeting centered on the possible cost increase to rate payers as a result of the permit. As stated

above, rates are set by the district and not by DEQ. It was also pointed out that DEQ must write and issue the permit in compliance with state and federal regulations.